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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

FIBERS A

Natural fibers A 1

Fine histology of the keratin fibers. Joel Lindberg, E. H. Mercer, Bo Philip & Nils Gralen. *Textile Research J. 19,* 673-78 (Nov. 1949).

Summarizes recent knowledge regarding the fine histology of wool fibers and hairs as revealed by optical and electron microscopy and suggests a new terminology, based on the newer knowledge of the histology of keratin fibers—viz., the epicuticle, exocuticle, and endocuticle for the components previously included in the term "cuticle"; and fibrils, microfibrils, and cortical cement for the components of the cortex.

Fine structure of sisal fibers. R. D. Preston & Mavis Middlebrook. *J. Textile Inst. (Trans.) 40,* T715-26 (Oct. 1949).

This paper describes the structure of sisal fibers not only from the standpoint of furnishing information about this fiber but also information about native cellulosic fibers generally. In the investigation described, it was found that the narrow, first-formed outer layer of cell wall differs from the bulk of the wall within, in that the cellulose micelles lie in a spiral, making an angle of about 40° with the cell length, whereas in the inner layer the angle is about 20°. The micelles in the outer region are more dispersed about their common direction than are those in the inner layer. The surfaces of these fibers is therefore structurally different from the inside.

Further analyses of Australian fleece wools. R. B. Sweetten. *J. Textile Inst. (Trans.) 40,* T727-30 (Oct. 1949).

The results obtained by analyzing 150 samples of greasy fleece wools, all substantially free from vegetable matter, are reported. Most of the samples were from Victoria and South Australia,

but every state except Queensland is represented. With the exception of one sample each of Lincoln and Southdown wool, all were merino, crossbred, full fleece and lamb types, ranging in quality from 58s to 64s. A table is presented in which the following information is given: class of wool, district of origin, per cent wax, per cent suint, per cent dirt, per cent moisture, per cent oven dry wool, wool quality, and length of wool.

Ramie . . . the answer to synthetics. Willis G. Waldo. *Cotton Trade J.* (International Ed., 1949-1950), 160-63

In this discussion of the growing processing and the utilization of ramie, recent advances in growing and processing are noted. The properties of ramie are compared with those of a new synthetic fiber "X" which is known as a new "outdoor" fiber.

Structure of textile fibers. VIII—Long vegetable fibers: (1) Bast fibers: jute, hemp, ramie, Sunn hemp; (2) Leaf fibers: sisal, manila, phormium. A. J. Turner. *J. Textile Inst. (Proc.) 40,* P972-84 (Oct. 1949).

The general chemical composition of bast and leaf fibers, and the methods of extracting them from the plants are discussed. The differences between and similarities of the various bast and leaf fibers are noted and illustrated by X-ray diagrams.

Structure of the wool fiber. Giles E. Hopkins. *Textile Research J. 19,* 816-21 (Dec. 1949).

This is a review of the molecular structure and physical properties of the wool fiber written for the mill engineer and executive to serve as an outline into which the new wool fiber technology may be fitted as it develops.

"Subcutis" and other cuticular preparations from wool and hair. E. H. Mercer, Joel Lindberg & Bo Philip. *Textile Research J. 19,* 678-85 (Nov. 1949).

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It is possible, by dissolving the keratin in hair or wool fibers, to separate the epicuticle, which is very resistant chemically, in the form of a continuous tube, the external surface of which is that of the original fiber. The epicuticle may be thickened by the adhesion of more or less of the other 2 layers of the cuticle, the exocuticle and the endocuticle. These tubes are identical with those previously described by Lehmann which were thought to originate beneath the cuticle from a material named the "subcutis".

Artificial fibers A 2

Developments in rayons and synthetic fibers. Anon. *Silk & Rayon 23*, 1490, 1494, 1496, 1498, 1500 (Nov. 1949).

Reviews new developments in synthetic fibers and in finishing including among others: a preshrinking process described in BP 626 336 in which a fabric is stretched considerably in width on an overfeed tenter while wet and then allowed to recover weftwise while being dried free from tension in either warp or weft; a process for improving the handle of rayons prior to the application of a water repellent treatment by the use of starch insolubilized by reacting with glyoxal; and a new method for producing polyesters by reacting glycols with acid chlorides, as for example decamethylene glycol and glutaryl chloride.

Developments in rayons and synthetic fibers. Anon. *Silk & Rayon 23*, 1638, 1641, 1644, 1646, 1650 (Dec. 1949).

Reviews recent developments in synthetic fibers and in finishing including: the use of formaldehyde-styrene-maleic anhydride resins to size all kinds of yarns and to give a stiff finish to many types of fabrics; an apparatus for coating individual nylon yarns with polyvinyl chloride; a method for increasing the solubility of acetate rayon dyes by the use of surface active agents; a method for forming stable cellulose solutions by treating cellulose with a strong solution of caustic soda containing dissolved zinc oxide in the presence of an oxidizing agent such as sodium persulfate or a hypochlorite; and production of linear polymers from amino acids.

Dynel—a new synthetic fiber. Anon. *Can. Textile J. 66*, 51 (Dec. 1949).

Dynel, the acrylonitrile-vinyl chloride staple developed by Carbide and Carbon Chemicals, is noted for its warmth, strength, fire resistance, and mothproofness. Fabrics made of Dynel will char, but when the source of ignition is removed, there

is no further burning. Dynel fabrics were not affected by mildew or bacterial growth even after being buried six months in moist soil.

Dynel—new synthetic staple fiber now available. Anon. *Rayon & Syn. Tex. 31*, 63-4 (Jan. 1950).

The properties of Dynel, a new synthetic staple fiber spun from a copolymer of acrylonitrile and vinyl chloride, are described. Dynel can be spun on the cotton, wool, worsted, and silk systems; when properly stabilized it will not shrink. The fibers do not absorb water and do not support combustion; other features include immunity to mildew or bacterial growth and moths and other insects. Dynel may be dyed in bright colors with good fastness to light, washing, crocking, and cross dyeing. The new fiber is being tested for a variety of applications; research is continuing on processing and finishing techniques.

Fiberglas in industry. J. K. Park. *Am. Dyestuff Reptr. 39*, 59-62 (Jan. 23, 1950).

This is a review of the properties of Fiberglas and a discussion of its use in industry as filters, insulating material, laminates, etc.

Fiberglas in textiles. John K. Park. *Am. Wool Cotton Reptr. 63*, 13, 30 (Dec. 29, 1949).

A review is presented of the properties and applications of glass fibers.

Fibers from peanut proteins. S. L. Kapur. *J. Sci. Ind. Res. (India) 8*, 453-54 (Nov. 1949).

The process of making fibers from peanut proteins is described and the properties of the fiber are noted.

Method of drying. Jas. G. Wiegerink (to Am. Viscose Corp.). USP 2 490 938, Dec. 13, 1949.

The method of drying a water-moist annular wound package of artificial filaments of regenerated cellulose containing water of absorption and surface moisture comprising the steps of applying high frequency induction at atmospheric pressure to heat the mass internally to vaporize and thereby effect removal of moisture until ⅓ to ⅕ of the initial moisture content has been removed, interrupting the induction heating before the moisture content of the package has been reduced below ⅕ the initial content, and subsequently removing the remaining moisture by circulation of a heated gaseous medium with respect to the package.

"Orlon" in the canvas goods industry. J. B. Quig. *Rayon & Syn. Tex. 31*, 64-5 (Jan. 1950).

The properties of Orlon fiber that make it espe-

cially suitable for use in canvas goods are discussed.

Preparation and properties of alkali-soluble metal carboxymethylcellulose fibers. J. David Reid & Geo. C. Daul. *Textile Research J. 19,* 794-801 (Dec. 1949).

Metal carboxymethylcellulose fibers may be produced from sodium carboxymethylcellulose and suitable metals which are capable of cross-linkage to yield fibers with strengths ranging from 1 to 2 g per grex. A mixed copper-aluminum carboxymethylcellulose fiber was the most satisfactory from the standpoint of strength, appearance, flexibility, feel, and like characteristics. The fiber is similar to the alginic acid fibers developed in England and should be suitable for novelty fabrics and uses where an alkali-soluble fiber is desired.

Rayon's increasing importance. Howard Shearer. *Am. Wool Cotton Reptr. 63,* 35 (Dec. 22, 1949).

The use of rayon in nonwoven fabrics, flock, plastics, rubber articles, etc. is reviewed, and the ability to change the finish of a fabric to obtain a specific desired effect is briefly discussed.

Structure of textile fibers. IX. Structure of viscose rayons. L. Rose. *J. Textile Inst. 40,* P1036-47 (Nov. 1949).

Leading up to a description of viscose rayons (the author states that there are a whole series of types with merging properties) is a discussion of the viscose solution, the extrusion process, and the orientation of the fibers. The effect of radial shrinkage, the properties of the skin of viscose filaments, and the properties depending on the crystalline-amorphous ratio are also discussed. Finally the mechanical properties as products of the amorphous properties are discussed. A mechanical model analogy with the properties of the viscose rayons is treated at length, with load-elongation curves for the theoretical model and the actual viscose rayons being shown.

Use of radioactive tracer isotropes [sic] in the rayon industry. Paul W. Frisk. *Rayon & Syn. Tex. 91,* 39-41 (Jan. 1950).

This is a review of the applications of radioactive isotropes [sic] in the rayon industry.

YARN PRODUCTION B

Alabama technical discussion. Anon. *Textile Industries 113,* 131 (Dec. 1949).

A highly condensed summary is given of the discussion on yarn manufacturing practices at the fall meeting of the Alabama Textile Operating Executives.

AN INTRODUCTION TO THE STUDY OF SPINNING. W. E. Morton. New York, Longmans, Green and Co., 1949. 245 p. Price: $3.25.

Intended as a textbook for use during the first 2 years of spinning courses, this book covers the greater part of the syllabuses in Sections I and II of the Textile Institute's examination in general textile technology. It deals with the fundamental nature of the processes through which the raw materials have to go in the course of yarn manufacture, and shows how the evolution of the various modern machines from the original handcraft appliances has been influenced in each case by the character of the material it was intended to treat. This new edition has been revised in the light of developments which have taken place since 1937; and the major alterations and additions are to be found in the chapters on raw materials and especially rayon.

Causes of neps in Indian cotton yarns: I. A. N. Gulati. *Indian Textile J. 60,* 65-9 (Oct. 1949).

A series of experiments which were used to ascertain if factors other than immaturity of lint were involved in the formation of neps is described. Such information as 1) percentage incidence of neps, 2) means number of fibers, 3) mean length of fibers, and 4) mean maturity percentages in each type of nep was obtained. The data showed that determination of neps per gram is a better measure for comparing neppiness than neps per yard. It was also found that different nep-types are found in samples; these include 1) fiber-neps containing 90% or more immature fibers, 2) those containing 50%, and 3) those containing proportions other than mentioned above (to be cont.).

Fiber treatment. Monsanto Chemical Co. Australian P. 134 907, July 1, 1947.

Apparatus for treatment of textile fibers with liquids includes a liquid applicator device housing means such as pumps for delivering to centrifugal means and means such as discs carried by the centrifugal means for ejecting the liquids onto a web of textile. A method of treating fibers is also claimed.

Lubrication of glass fibers. A. P. Thurston. Brit. P. 586 908. *Textile Mfr. 74,* 46 (Jan. 1948).

Describes a method of binding together and lubricating glass fibers in slivers, yarn, etc. Applied to the fibers is a coating material comprising at least 2 organosilicon compounds, one of which is

a resin, the other being a lubricant.

Major problems in the processing of wool. 1-7. P. P. Townsend. *Wool Rev. 32,* 21 (Feb. 1949); 25-6 (Apr. 1949); 19-21 (May 1949); *33,* 21 (July 1949); 19 (Aug. 1949); 21 (Sept. 1949); 19 (Oct. 1949); 21 (Nov. 1949); 21 (Dec. 1949).

In this series of articles are discussed: 1) Scouring; 2) Uniformity of Color in Woolen Yarn; 3) Fiber Breakage in Carding; 4) Nep Formation in Worsted Carding; 5) Uniformity of Tops; 6) Variation in Count Due to the Woolen Card; 7) Changes in Wool Processing; 8) Automatic Fettling of the Card; and 9) End Breakages.

Mill men discuss practical problems. Anon. *Textile World 99,* 137, 139 (Dec. 1949).

The Northern North Carolina and Virginia Division of the Southern Textile Association discussed many questions relating to per cent of reworkable waste, per cent RH, type of beaters used on the picker, and, several questions on different phases of spinning, weaving, and maintenance. Two or 3 mills reported answers to each question thus offering some basis for comparison, as no conclusions are drawn.

Process steam economy in wool combing and scouring. R. Adams. *Textile Mfr. 75,* 529-30 (Nov. 1949).

Outlines specific methods for economizing on steam consumption in the main steam using processes in a combing mill, viz: scouring, drying, carding, back washing and combing. Concludes that many of the machines are thermally and aerodynamically so crude that nothing less than a complete rebuild can provide a solution to the excessive steam consumption problem.

Review of literature on neps. J. F. Bogdan. *Textile Industries 114,* 98-103, 105, 107 (Jan. 1950).

In a summary of existing available knowledge on nep reduction; and methods of sampling and extion of a nep; effect of presence of neps; cause of nep formation; neps in ginning, opening and picking, carding, drawing, combing, and spinning; neps reduction; and methods of sampling and expressing results. A bibliography of the literature on neps is also given.

Stains and foreign matter on cotton. Bert Johnson. *Textile Industries 113,* 87-89, 99 (Dec. 1949).

Cases of spots, stains, and foreign matter on cotton are reviewed, and possible remedies are suggested. Damaged raw cotton is a source of these stains, etc. as well as mill processing. The discontinuance of the manufacture of asphalt coated cotton bale ties and a reduction in the number of bales marked with in and pain are 2 achievements in eliminating spotting caused by damaged raw cotton.

THE THEORY OF FLAX SPINNIING. A. V. Pringle. Belfast, H. R. Carter Publications Ltd., 1949. 73 p. + xiii. Price: 15s.

This is the first of 3 volumes which will be published under the general title of *The Theory and Practice of Flax Spinning.* The chapters comprising the book have already been published in serial form in *Fibres, Fabrics and Cordage.* The work, written primarily for students, discusses the spinning of flax, beginning with the cultivation and harvesting of flax, and following the course of the fibers through the various preparatory operations to the eventual packing and dispatch of the finished yarn. The last 2 chapters are devoted to Inspection and Testing, and Mill Management. A brief bibliography is given; a number of the books listed, however, are out of print.

Yarn manufacturing practices. Anon. *Textile Industries 114,* 115-16, 119, 121, 123, 125 (Jan. 1950).

A report is presented on the discussion of yarn manufacturing practices at the fall meeting of the Alabama Textile Operating Executives.

Fiber preparation B 1

Automatic scale watches picker lap quality. C. Mallard Bowden. *Textile World 99,* 136-37, 208, 214 (Nov. 1949).

Toledo's Model 65-1821 lap scale prints the weight and Ok or Rej on a tape as each lap is weighed. A shuttle covers the dial until the lap is weighed and the tape printed, then slides back to let the operator see how to adjust the picker. This allows management to check on the total weight delivered, the number of rejected laps, and lap production. It also eliminates the necessity of the operator marking up his own production.

Burr and trash removal improves wool quality. E. H. Helliwell. *Textile World 99,* 116, 222, 224 (Dec. 1949).

Tests run with the same mixture of wool and garnetted stock being bed to 2 cards, one with a Perkins Fiber Conditioner between the breaker and finisher cards and one without the fiber con-

ditioner, showed that use of the fiber conditioner resulted in improved yarn and fabric. Burrs, dried grass, and other impurities are removed. Very little extra floor space and no additional help is needed for this unit.

Opening needs better feeders. Anon. *Am. Wool Cotton Reptr. 64*, 11-14 (Jan. 19, 1950).

Factors which have necessitated creating a machine to replace the bale breaker, and which govern the redesigning of the bale breaker are discussed. Material differences between the bale breaker and the blending feeder are described.

Picker maintenance is key to quality laps. Robt. H. Pharr. *Textile World 99*, 147, 149, 216, 218 (Nov. 1949).

Picker maintenance should be on a pre-planned schedule. Correct weighing laps may vary as much as 10% within the lap. Evener motions, belts, and gears should be checked. Screens, doffers on hopper aprons, driver and idler pulleys should also be checked weekly. Bearings must receive proper maintenance, as well as beaters, screens, and humidification system. Lap-meter tests show where special checks are needed.

Preparation of staple fibers in condition to produce top. John R. Stewart. USP 2 490 929, Dec. 13, 1949.

The method of preparing a web of intermingled staple fibers from continuous length filaments, which consists in feeding continuous parallel filaments to a severing point, anchoring the filaments at predetermined locations while feeding, cutting the filaments successively at the locations to form a plurality of rows of suspended selected length staples, supporting and moving transversely the free ends of successive rows of suspended staples while feeding the anchored ends to cause each row of the staples to overlap the preceding row.

Production of yarn from staple fibers. John P. Mackie (to Jas. Mackie & Sons, Ltd.). USP 2 492 306, Dec. 27, 1949.

A method of forming slivers of staple fiber from tows of continuous filaments comprises delivering a plurality of such continuous filament tows in spaced parallel relation to a severing device, cutting them at spaced intervals lengthwise thereof into successive bunches of staple fiber, and presenting a plurality of such bunches end-on simultaneously to a carding machine in continuous succession.

Removing grease, etc. from wool. Smith, Drum & Co. Brit. P. 586 601. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes an apparatus for the continuous treatment with solvent and for drying of raw wool.

Simultaneous scouring and bleaching of wool. The Mathieson Alkali Works. Australian P. 135 009, Aug. 26, 1946.

Shorn or "pulled" wool is continuously passed through an aqueous liquor containing soda-ash, sodium bicarbonate, soap and sodium chlorite; the composition of the liquor being maintained throughout the operation so that the weight ratio of "apparent" carbonate to "apparent" bicarbonate is within the range 1:0.5 to 1:2. The chlorite concentration is maintained preferably within the range of 0.01% to 2% based on the weight of available chlorine. "Apparent" carbonate = a x 1.06, "Apparent" bicarbonate = $(b\text{-}a)$ x 0.84 where a = twice the number of ccs of 0.09 N.HCl required to reach end-point in a phenol-phthalein titration; b = the number of ccs of 0.09 N.HCl required to reach end-point in a methyl-orange titration.

Textile oil. Alfred C. Goodings, Harry B. Marshall & Herbert W. Lemon. Can. P. 449 179, June 22, 1948.

A textile oil comprising a base oil having a Saybolt Universal viscosity between about 50 and 250 sec. at 100°F, and containing as a scouring assistant an effective amount of mixed diester of polyhydric alcohol of at least 3 hydroxy groups with a long chain fatty acid of at least 10 C atoms and not more than 2 double bonds and a short chain aliphatic acid of less than about 6 C atoms.

Carding and combing B 2

Neps. Anon. *Saco-Lowell Bull. 21*, 27-30 (Apr. 1949).

As a result of an investigation of neps it is suggested that mills having trouble with neps and specks should check beater settings, beater speeds, and card production, and give some thought to the substitution of the blade beater by the carding beater. Fifteen photomicrographs of nep formations in yarn and fabric are shown.

Answers to carding questions. Anon. *Am. Wool Cotton Reptr. 64*, 10, 43 (Jan. 19, 1950).

Answers to carding questions discussed at the fall meeting of the Alabama Textile Operating Executives are reported.

Raising production and quality in woolen carding. H. R. Mauersberger. *Rayon & Syn. Tex. 31*,

52 (Jan. 1950).

Features of the 80″ cards built by the Newport News Shipbuilding and Dry Dock Co. for the Forstmann Woolen Co. are described briefly.

Sliver forming apparatus. Pacific Mills. Australian P. 134 857, Dec. 18, 1946.

Apparatus for forming sliver comprises means forming a web, means fracturing the web into oblique strips, means debonding fibers, means shearing the oblique strips into a second web and means for rolling the second web helically upon itself at an inclination to its length. A method of forming a sliver is also described and claimed.

Drafting and roving B 3

Bearing for drawing frames. Elvin B. Robinson (⅓ to Clarence J. Costner & ⅓ to Arnold W. Kincaid). USP 2 490 544, Dec. 6, 1949.

This invention provides means for mounting the top and bottom rollers of a drawing frame wherein the bearings are staggered with relation to each other so as to permit the sets of rolls to be placed closer together than has heretofore been accomplished, thus resulting in better drafting. Also in providing anti-friction bearings for these top and bottom rollers, to thus maintain a definite distance between the top and bottom rollers at all times.

Bobbin whirl gear. Wm. F. Lee & Jos. B. Allen. USP 2 491 322, Dec. 13, 1949.

A bobbin-supporting whirl gear for a cotton mill roving frame or the like and comprising a tubular body portion extending from one end, a laterally projecting bobbin-supporting portion at the upper end of the body portion, a bearing sleeve of wear-withstanding material insertable in the tubular body portion and tightly fitting therein, the bearing sleeve projecting beyond the plane of the bobbin-supporting portion whereby to provide a bobbin-centering means, and a toothed annular gear portion removably receiving the tubular body portion and secured thereto inwardly of the bobbin-supporting portion.

Gill-box stop motion. R. Field, A. Brearley & Co. Brit. P. 587 219. *Textile Mfr. 74*, 47 (Jan. 1948).

Describes a motion for stopping a drawing box on breakage of an end.

Identification of sisal, etc., yarns. The Gourock Ropework Co., Ltd. Brit. P. 586 465. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes a method of producing varicolored hard fiber yarn such as sisal or manila, comprising the mixing during the final drafting operation or the second last drafting operation of 2 or more lots of fibers of which at least one lot is colored by dyestuff which is added to the lubricant or softening agent applied before or during earlier stages of the drafting operation.

Roller weighting arrangement. Casablancas High Draft Co., Ltd. & J. Noguera. Brit. P. 587 900. *Textile Mfr. 74*, 96 (Feb. 1948).

Describes a weighting motion for the drafting rollers on drawing frames, speed frames, ring frames and mules. The weight hook engages a transverse pin secured between lugs on the saddle.

Shaft bearing for roving frames. Wm. F. Lee & Jos. B. Allen. USP 2 491 323, Dec. 13, 1949.

A bearing support for the carriage shafts of a roving frame comprising a strap metal piece mounted on the bolster frame of the roving frame, the strap metal piece extending transversely of the bolster frame and extending to opposite sides thereof, and adjustable bearings on each end of the strap metal piece and engaging the carriage shafts.

Stronger yarn at lower cost produced by pin drafters. Anon. *Textile World 99*, 106-07 (Dec. 1949).

A comparison of the standard Bradford system and the system using Warner and Swasey pin drafters shows an increase in production per operator-hour from 31 pounds to 105 pounds. This means fewer machines and fewer operators for the same production. Less waste and an increase in yarn tensile strength also resulted from this change. Illustrated with charts comparing the 2 systems.

Web guide for draw frames. W. B. Cowan & Mellowes & Co., Ltd. Brit. P. 587 095. *Textile Mfr. 74*, 47 (Jan. 1948).

Describes spinning machinery, its object being to improve means for guiding the web issuing from between the front rollers of a drawing frame to a can or coiler box.

Spinning B 4

Automatic machine for doffing ring frame spindles. Anon. *Textile Mfr. 75*, 519-20 (Nov. 1949).

Describes special features of a new spindle doffing machine developed by the British Cotton Industry Research Assn. The machine operates on rails

attached to the side of the frame, and the doffing is controlled by a push-button switch. It doffs 12 spindles at a time, and returns automatically to the end of the frame when doffing is completed.

Centrifugal spinning machine. Prince-Smith & Stells Ltd. Australian P. 134 849, Dec. 10, 1946.

A centrifugal spinning machine is characterized by a series of individually driven yarn holders, reciprocable traverse guides, a series of spindles located co-axially with and below the series of yarn holders, a series of bobbin pegs articulated to the spindles, means to move the spindles axially, means to move any individual bobbin peg angularly and a series of bobbins each fitted with a resilient peripheral covering on its upper flange. In case of breakage of a yarn during the operation of the machine, the location of an end for the recovery of yarn from the holder is brought about by the manipulation of the bobbin into frictional contact with the yarn mass whereafter the bobbin is caused to assume a symmetrical position within the yarn holder to receive the yarn.

Effect of twist and tension on yarn quality. F. Permanger. *Indian Textile J. 60,* 10-19 (Oct. 1949).

A series of experiments is discussed in which the effect of varying both twist and spinning tension on the quality of the cotton yarn were studied quantitatively. The following tests were carried out on the yarns in order to obtain a complete picture of their behavior: strength, extension, count, turns per inch, spiral angle, and diameter. The means of carrying out these tests are described, but the general discussion and interpretation are to be considered in a forthcoming article.

Getting those extra pounds out of the spinning room. Geo. A. Wescott. *Textile Age 13,* 70, 75-80 (Dec. 1949).

To attain maximum production in the spinning room, special attention should be given to roving, creels, roving rods and guides, traverse motion, top roll covering, steel rolls, aprons and clearers, spindles, tape tension pulleys, bobbins, cams, etc. Points that must be attended to if the most successful return is to be obtained from spinning are discussed.

Hegemax. A revolution in spinning. E. G. Hegedus. *Cotton Trade J.* (International Ed., 1949-1950), 158-59.

This is a brief article by the inventor of the

Hegemax spinning technique. The development of the proceses, its features, and possible further developments are discussed. The Hegemax device is fitted in place of the ordinary thread guide; it consists of 3 discs, the largest being responsible for the drive of the rotating twist unit, the "turbine." The turbine gives a preliminary twist to the drafted sliver between the delivery rollers and the top of the balloon. The turbine has a slit through which the yarn is introduced when piecing up, and piecing up is actually effected while the turbine is running. Hegemax can be used on any standard make of frame. Some of the advantages mentioned include: fewer breakages, higher spindle speed, and 12% higher breaking strength.

Longleaf Mills produce yarn from tow on direct spinner. Anon. *Am. Wool Cotton Reptr. 63,* 23, 105 (Dec. 15, 1949).

Rayon weaving and knitting yarns with yarn numbers ranging from 10s to 40s are being produced at Longleaf Mills, Inc. from continuous filament rayon tow with zero twist, received from suppliers on 5- or 10-pound tubes or cones. In producing yarn from the tow, it is necessary to break each individual filament in the drafting operation, and the Saco-Lowell spinning frame is used. Features of this frame are described.

Lubricating flyer spindles. C. F. Taylor & Co. Ltd., J. S. F. Thomas, P. L. Hutton & J. S. Crotch. Brit. P. 588 205. *Textile Mfr. 74,* 97 (Feb. 1948).

Describes improvements in the lubrication of flyer spinning spindles.

Spindle slippage and yarn strength. V. A. Kny. *Indian Textile J. 60,* 29-31 (Oct. 1949).

The reasons for spindle slippage include: loose bands or tapes; eccentric tin cylinders, defective spindle bearings, over lubricated or dry spindle bearings, and lack of balance on spindles. By the consideration of twist and the relationship of twist factors to spindle speed, it is possible to establish a nomograph which includes per cent skein strength, per cent excess spindle slippage, and twist factor. This nomograph can then be used directly to ascertain the effect of spindle slippage on yarn strength.

Spinning calculations simplified. 7-10. *Platt's Bull. 6,* No. 7, 134-39; No. 8, 151-56; No. 9, 173-76; No. 10, 193-99.

This is a continuation of a series of graphs relating to the variables involved in drafting and spinning. Explanatory notes and sample calculations

are given for each graph. (See also TTD: *5*, 74, 160 and 757.)

String-up device. Edw. N. Lichtenberg (to E. I. duPont de Nemours & Co.). USP 2 491 569, Dec. 20, 1949.

A process for stringing up yarn on a continuous, shaft-type draw-twisting machine while the machine is in operation comprises temporarily accumulating lengths of yarn in encircling relationship but out of driving contact with the draw roll and transferring the accumulation to the draw roll.

Winding and spooling B 5

Creel. Albert W. Keight & Frederick F. Sutherland (to Celanese Corp. of Am.). USP 2 490 874, Dec. 13, 1949.

A yarn package support for a creel comprises a platform supportable on a bar of the creel; the platform has a slot including a substantially circular opening at one end, and a yarn package holder mounted on the platform for substantially straight-line movement in the slot and for angular movement in the opening in the slot.

Flier for spinning and twisting machines. Michael Kocsuta & Thos. S. Mayner (to Industrial Rayon Corp.). USP 2 490 524, Dec. 6, 1949.

This invention provides a flier for use with heavier denier yarns. The flier has a braking device which operates continually throughout the rotation of the spool and which is integrated in the flier body construction.

Heavy package uptwister. Technical Representative. *Brit. Rayon & Silk J. 26*, 56-7, 80 (Nov. 1949).

An entirely new machine, shown for the first time at the Belle Vue, Manchester display, was the Ernest Scragg and Sons Ltd. uptwister, made for handling large packages at high speeds. It is designed to handle all kinds of synthetic filament yarns and to twist from packages up to 3½ lbs. gross weight. The special spindle assembly consists of flexible type "Badden" spindles, fitted with S.K.F. roller bearings and with a self-contained reservoir of oil that will last for a year. Roller shafts are fitted with oil-retaining bearings. Each deck has a separate motor. Finished packages may be either closely wound bobbins or cross wound cheeses with parallel or tapered ends.

Light package uptwister. Anon. *Brit. Rayon & Silk J. 26*, 58-9 (Dec. 1949).

The Scragg light package uptwister is suitable for rayon, synthetic textiles, and silk with twists up to 90 tpi and spindle speeds up to 17,000 rpm. Finished packages may be flanged bobbins or cheeses with parallel or tapered ends. The roller bearing spindle is so made that off-balanced as well as balanced packages will run at maximum speed. The spindle is also free to revolve in the "off" position. Many of the bearings used are of the self-lubricating variety, with heavy duty bearings being either ball or roller bearing types.

Quality winding techniques. Karl H. Inderfurth. *Brit. Rayon & Silk J. 26*, 63-4 (Nov. 1949); *Textile World 99*, (Abstract) 120-21 (Dec. 1949); *Can. Textile J. 66*, 51-8 (Nov. 11, 1949).

See TTD: *7*, 14.

Quality winding demands precision control. Karl H. Inderfurth. *Textile World 99*, 120-21 (Dec. 1949).

Abstracted from a paper presented before the American Association of Textile Technologists in New York.

Spool or bobbin. Geo. B. Markle, Jr. (to Freeland Spool & Bobbin Corp.). Can. P. 449 351, June 22, 1948.

In a spool or bobbin a hollow open-ended barrel provided interiorly with longitudinally extending spaced ribs extending substantially throughout the length of the barrel, a head at each end of the barrel and each provided centrally with an aperture, a tubular hollow bearing disposed and supported within one end of the barrel, the aperture of the head at the opposite end of the barrel provided with a bearing ring, a hollow adapter disposed wholly within the barrel and the ring and provided exteriorly with spaced longitudinally extending grooves interlocking with the ribs of the barrel, a drive spindle having driving connection with the adapter and extending therethrough, the outer end of the spindle being rotatably supported in the tubular bearing in the opposite end of the barrel.

Tube holder for winding spindles. S. & E. Scragg Ltd. & C. L. Armes. Brit. P. 587 793. *Textile Mfr. 74*, 95 (Feb. 1948).

Describes simple means which will securely hold tubes in position on winding spindles while permitting of their easy removal. Each spindle is formed with a central part which is made of a suitable diameter to permit the tube sliding freely on it. At a point midway between the ends a radially disposed hole is provided, and in this hole

is a spring pressed ball or plunger. Suitable provision is made for retaining the plunger in the hole by forming a lip at the outer end of the hole. The ball under pressure from its spring engages with the inside of the tube when the latter is placed on the spindle.

Winder yarn conveyor saves $10,000 a year. G. C. Warren, Jr. *Textile World 99*, 126-27, 198, 200 (Dec. 1949).

A conveyor system for handling yarn from spinning frames to winders consists of a series of boxes that are filled manually in the spinning room, then are dumped manually directly into special winder creels on the floor below. The system covers 8 rows of winders, is serviced by 2 men only, and has reduced mixed yarn. Maintenance is said to be low.

Winding machine. Edw. J. Abbott & Winthrop L. Perry (to Abbott Machine Co.). Can. P. 449 917, July 20, 1948.

An automatic winding machine.

Winding machine. Edw. J. Abbott & Winthrop L. Perry (to Abbott Machine Co.). Can. P. 449 918, July 20, 1948.

An automatic winding machine, including a combined clamp and cutter comprising clamping and cutting elements adapted to clamp the thread and cut the thread between the clamped portion and the bobbin.

Yarn twisting apparatus and method. Vincent A. Agresti, Geo. W. Bogdanffy, Clyde O. Mitchell & Henry C. Uhlig (to Howe Machinery Co., Inc.). USP 2 492 778, Dec. 27, 1949.

A tensioning device for yarn travelling in the direction of its length under tension imposed upon it in its forward portion, which comprises means for engaging the yarn in its travel and for imposing a substantial retarding force thereon, and means immediately forward of the yarn engaging means, but a substantial distance therefrom, for substantially diverting the yarn issuing from the yarn engaging means from a straight line path of travel, the last named means comprising a member having a smoothly curved yarn receiving and conducting surface of such curvature that it substantially prevents travel of twist in the yarn, imparted to the yarn at a location immediately forward of the yarn diverting means, into the span of the yarn between the yarn engaging means and the yarn diverting means.

Yarn processing B 6

Adjustable yarn tension device. Herbert O. Naumann (to North American Rayon Corp.). Can. P. 449 679, July 6, 1948.

In a tension device, yarn engaging elements cooperating to encompass a yarn path, a bonnet rotatable about an axis aligning with the yarn path and enclosing the elements and means actuated by rotation of the bonnet to regulate the pressure of the elements upon yarn passing along the yarn path.

Device for tensioning yarn. Chadwick B. Kingsbury (to North American Rayon Corp.). USP 2 492 581, Dec. 27, 1949.

A device for tensioning thread comprises means defining a flat surface having a thread aperture therein, a disc-like body having a short stem projecting into the aperture and fitting loosely therein, a marginal flange extending away from the flat surface normally lying in contact but being susceptible of relative nutation during passage of thread therebetween and through the aperture beside the stem.

Feeding apparatus for yarns or the like. Rene Vin (to Etablissements Foron). Can. P. 449 493, June 29, 1948.

In a feeding apparatus for yarn or the like, the combination of a rotatable cylinder, mounted on a driving shaft, on which the yarn is caused to make a number of coils, a frame supporting the shaft, supporting plates rigid with the frame and surrounding the cylinder, means for guiding each coil of yarn from one side of a supporting plate to the other side, a second cylinder mounted on the same driving shaft, the second cylinder having a smaller diameter than the first cylinder, means adapted to guide the yarn from the output of the first cylinder to the input of the second cylinder, and an apertured device adapted to guide and support the coils of yarn round the second cylinder.

Method and apparatus for spooling yarns. John H. Thomas & Ed Fletcher (to Fiberglas Canada, Ltd.). Can. P. 449 348, June 22, 1948.

An apparatus for spooling yarn, comprising a source of yarn situated outside the space bounded by planes passing radially through the spool at the desired positions of the ends of the package of yarn to be formed and a finger fixed on and extending radially from a disc and revolving in a path such that it engages the yarn in the vicinity of that end of the package at which the angle of incidence of the yarn is smallest, forces the yarn to traverse the package to the vicinity of the opposite end, and there passes out of engagement with it, thus releasing it to perform the return

traverse under the influence solely of its tendency to meet the spool at a right angle.

Method and apparatus for threading a plurality of spaced filaments. Wm. F. Holtschulte & Saml. D. Philipps (to Fiberglas Canada, Ltd.). Can. P. 449 349, June 22, 1948.

A convex guide for spacing a plurality of filaments at predetermined distances from one another along a given line, the guide having on its outer surface a plurality of grooves any change in the spacing of which between their ends is gradual and which are in number at least equal to the number of filaments to be spaced.

Nylon combinations are not hard to throw. S. J. Miller. *Textile World 99*, 141, 194, 196 (Dec. 1949).

Nylon combinations with acetate, rayon, and silk are being increasingly used. Nylon is reeled, then pre-shrunk by hot water, live steam, or a conditioning box, wound to bobbins, then plied on regular doubler-twister machines. Speeds, turns per inch, and tensions for plying are discussed.

Pigtail thread guide. Geo. F. Taylor (to Can. General Electric Co., Ltd.). Can. P. 449 477, June 29, 1948.

A thread guide comprising a cemented carbide tube bent into the form of a spiral.

Thread brake. Albert Moessinger (to Sulzer Freres, S.A.). Can. P. 449 693, July 6, 1948.

A brake for maintaining a predetermined tension in an axially moving thread comprises 2 members between which a portion of the thread is pressed, one of the members comprising relatively resilient means adapted to be subjecetd to tensile stresses only and extending in the direction of movement of the thread substantially by the length of the pressed portion thereof.

Yarn drying apparatus. Smith, Drum & Co. Brit. P. 586 600. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes a drying apparatus including a drying chamber having a closed top, closed end walls and a movable yarn carrier comprising a manifold forming the bottom of the chamber. Spindles for yarn packages are mounted vertically on the manifold, the spindles forming air passages from the manifold to the interior of the packages. Means are provided for circulating heated air into the manifold through the spindles and the packages into the chamber. A perforated plate closes one side wall of the chamber, and a heating coil forms the opposite side wall, the packages being arranged between the plate and the coil. The air is circulated through the coils transversely to the spindles about the outside of the packages and is discharged through the perforated plate, the air from the inside of the packages also discharging through the plate.

Special yarns B 7

Crimped effects in yarns. Heberlein & Co. A. G. Brit. P. 588 107. *Textile Mfr. 74*, 97 (Feb. 1948).

Describes a process for the production of crimped effects continuously, by imparting a temporary high twist to traveling yarns, by means of a false-twist device. The yarns are given a temporary high twist, in the opposite direction to their initial twist, beyond the zero point.

Yarn. Eric Weiss (to United Merchants & Mfrs., Inc.). Can. P. 450 179, July 27, 1948.

A yarn comprising a continuous filament core of a synthetic material and a wrapping of drafted staple fibers.

Yarn products B 8

Cord processing apparatus. Wingfoot Corp. Australian P. 135 043, Jan. 2, 1947.

A cord processing apparatus comprises a stretching device for cord having a pair of frustoconically shaped grooved rollers, burnishing means associated with the stretching device, the burnishing means having a plurality of grooves corresponding generally to those of rollers and means imparting heat to the burnishing means.

Dry needle cooling in heavy-duty and high-speed machine sewing operations. H. F. Hume & T. O. Lee. *Textile Research J. 19*, 833-34 (Dec. 1949).

Describes a needle cooler devised to solve the problem of yarn fusing in multiple-needle leather sewing operations. It is based on the principle of cooling in rapidly expanding compressed gas jetted directly onto the needle.

Nylon thread. Dunlop Rubber Australia, Ltd. Australian P. 134 868, Apr. 22, 1947.

Reduction of the extensibility of nylon cord or thread is effected by impregnating with a soluble thermosetting resin (or its components), stretching, and then heating the cord or thread while stretched to convert the resin into an insoluble form.

Prevention of degradation of textile fibers by acids.

John D. Reid, Wesley K. Ward, Jr. & Lawrence W. Mazzeno, Jr. to U. S. of Am.). USP 2 493 031, Jan. 3, 1950.

A package comprising acidic fertilizer in a multiply wall paper bag having a sewed seam, said seam being sewed with cotton thread impregnated with at least about 20% by weight of triethanolamine distributed throughout the thread.

FABRIC PRODUCTION C

Continuous filament viscose rayon. Rene Bouvet. *Can. Textile J. 66,* 42-6 (Nov. 11, 1949).

When subjected to undue tension viscose rayon elongates, the individual molecules slide, pack more closely, become oriented parallel to the fiber axis, and the rayon becomes noticeably stiffer and more lustrous. If the strained ends are prevented from shrinking to their former state, as occurs in woven fabrics, intermittently brilliant ends or picks, or variably tight ends and picks, all generally referred to as "shiners", are produced. Practical suggestions are given on the effects of tension and moisture in the manufacture of filament viscose rayon to prevent "shiners", and methods of warping and warp sizing to improve quality.

MODERN TEXTILE DESIGN AND PRODUCTION. R. H. Wright. London, The National Trade Press Ltd. 168 p. Price: 42s.

. . . The volume describes how manufacturing processes are involved with design and design limitations and provides a practical background. There are 22 chapters in the volume. Chapter one deals with textile design—definition. Succeeding chapters concern the economics of design, dyed fabrics, basic fabric structure relative to design, dyed fabrics using rayon yarns, staple fiber fabrics, color and weaves, color in cross-dyed fabrics, colored woven stripes and checks, woven fabric designs, fabric and finish, the application of printing, printed cottons, printed rayons, printed furnishing fabrics, colorings, design styles, the production of printed fabric (dress), studio practice, design types, design technique, and handkerchiefs, scarves, squares, etc. An index is also included.—*Can. Tex. J.*

Yarn preparation C 1

Barber-Colman super-speed and Lancashire beam warping (Comparison of warper stoppage rates and P.M.H.). J. A. Blackburn & W. S. Sondhelm. *J. Textile Inst. (Proc.) 40,* P945-57 (Oct. 1949).

A survey was undertaken to compare the number of stoppages per unit length of yarn warped on the conventional slow-speed warping frames with the corresponding figure for the super-speed beamer and to find the causes for the stoppages. It was found that on the slow speed warpers approximately 223 stops per 100,000 yards were obtained as compared to 74 per 100,000 yards on the Barber-Colman warper. The reasons for these stoppages were also ascertained, and it was determined that the following factors influenced stoppage: weak and soft yarns, wild and tangled yarn, bad knots, thick piecings, ends laid on, bobbin wrong way, bobbin too full, picked ends, straight wind, badly built cheeses, cut bobbin or cheese, bobbin or cheese run out, lint on drop wire, and ends run together.

Beam warper accumulator or storage rolls. John C. Bodansky (to Cocker Machine & Foundry Co.). USP 2 491 438, Dec. 13, 1949.

In yarn or thread beaming means, a series of freely rotative accumulator-rolls alternate of which are mounted on stationary axes with the intervening ones suspendedly-supported; means whereby the suspendedly-supported rolls are consecutively-releasable for gravitational descent; means operative to elevate the descended rolls in reverse sequence; and means effective to hold the last mentioned rolls elevated or lowered.

Beamer. Fritz Lambach. Can. P. 450 648, Aug. 24, 1948.

A beaming or warping machine including a braking mechanism.

Beaming or warping machine. Fritz Lambach. USP 2 491 740, Dec. 20, 1949.

A warping machine having a swingable beam support, a drive for positively swinging the beam, and means to permit overrunning of the drive in case of stoppage of the support by an object in its way.

Direct steam-injection continuous starch-cooker. L. W. Rainard & G. Zanolli. *Textile Research J. 19,* 822-25 (Dec. 1949).

A number of different continuous starch-cooking devices are available for the production of starch-based textile pastes and sizes. The advantages and operation of a simple, direct steam-injection type made from standard piping, and the characteristics of pastes produced with this type of cooker, are discussed.

Electrical control system for warping or beaming plants. Fritz Lambach. Can. P. 450 647, Aug. 24, 1948.

An electrical control system for a warping or beaming plant, comprising an automatic electrical controlling means electrically connected with the circuits of the system for varying the electrical conditions thereof for a variation of the operating speed of the electromotor, the automatic electrical controlling means being responsive to the building up of the winding on the beam so as to provide for a substantially constant traveling speed of the warp yarns.

Greater tension control in warping. Jas. E. Watson. *Rayon & Syn. Tex. 31,* 51 (Jan. 1950).

Features of a new hydraulic warper are discussed. The used of hydraulics has produced a simple and foolproof automatic control requiring practically no maintenance, and in conjunction with proven mechanical vari-speed units combines simplicity for quality control by: 1) varying speed to comply with grade and type of yarn and 2) absolute control of yarn density being wound onto section beams.

High speed beaming machine. Technical Representative. *Brit. Rayon & Silk J. 26,* 58-9 (Nov. 1949).

A new beamer built by Harrison Knitting and Textile Machinery Co. Ltd., has a range of 8 speeds. Brakes are actuated electrically from either the creel stop motion or the yardage control, and manually from a rod. The beam is moved to and from the winding position hydraulically. All controls and indicators are on a single panel. The yardage measuring roll stops whenever the beam stops, thus, eliminating false measurement due to slippage and over-running.

Homogenization in warp sizing. Jas. H. Kennedy, III. *Textile World 99,* 127-34 (Nov. 1949).

This is a special report discussing homogenization, its advantages in slashing, how it affects the yarn, the actual mill experiences of 7 mills using homogenizers, and an explanation of the 2 main types used at present—the Gaulin homogenizer and the tri-homo dispenser and homogenizer. Some of the difficulties in the use of homogenizers are outlined. Diagrams and pictures illustrate the homogenizers and the way they fit into the slashing system.

Improvements to warp beams. F. L. Smith, G. W. Shackelton & Geo. Hattersley & Sons, Ltd. Brit. P. 587 204. *Textile Mfr. 74,* 47 (Jan. 1948).

Describes an improved method of securing and adjusting the end flanges to warp beams which will not allow moving or slipping of the flanges after they have been adjusted.

Interest in homogenized starch demonstrated at Georgia meeting. Anon. *Textile Industries 113,* 123, 125, 127, 129 (Dec. 1949).

A report is given on the slashing practices discussed at the fall meeting of the Textile Operating Executives of Georgia.

SLASHERS AND SLASHING. A. E. Silcox and A. K. Landau. Newtonville, Mass., Fiber Publishing Co., 1949. 101 p. Price: $1.50.

This is the first edition of a new technical treatise on the art of slashing. Mr. Silcox and Mr. Landau, the authors, are connected with Saco Lowell Shops of Biddeford, Maine, and the book was prepared from a series of articles which appeared in *"Textile Age"* magazine during 1948. The booklet covers in 11 small chapters, the sizer creel; stretch control and size vats; the center frame and hot air drying; the head end; combs, lease rods and binder rolls; delivery and press rolls; yarn tension and friction control devices; the head end and special attachments; slasher drives; instrumentation and automatic control; size preparation equipment; as well as slasher operation and proudction. There are 42 illustrations of devices, instruments and size preparatory apparatus, as well as some advertising in the rear portion. The book and its contents are held extremely simple, but contains no index. The book should find much use in rayon sizing plants as well. It is [a] thoroughly practical reference book on this subject for overseers, superintendents, students and textile engineers. —*Rayon & Syn. Tex.*

Slashing practices discussed by Georgia men. Anon. *Textile World 99,* 117-18 (Dec. 1949).

The experiences of various mills in the use of: viscometers for slasher size solutions, squeeze roll covers, hot-air slashers, steam controls, warp splitting, run-outs, and positively driven creels were reported at the recent meeting of the Textile Operating Executives of Georgia. Reports on these questions are brief and not detailed.

Votator offers slasher savings. Anon. *Textile Industries 114,* 74-6 (Jan. 1950).

A Votator starch apparatus for preparing the slasher size mix provides a finished size mix from cold starch and compound slurry continuously, gives a uniform mix from batch to batch, and gives a considerable saving in labor. A description of how the Votator starch processing apparatus works and a diagram of the system used at a Georgia cotton mill are presented.

Warp beam. Gustav E. Utter (to Crompton &

Knowles Loom Works). USP 2 491 941, Dec. 20, 1949.

In a warp beam having a barrel with external screw threads thereon, a warp head having a hub provided with internal screw threads threaded onto the screw threads of the barrel, a clamping block pivoted on the warp head and movable angularly relatively to the warp head in the direction of the axis of the hub, screw threads on the block meshing with the screw threads of the barrel, and means interconnecting the block and warp head by which the latter can be moved lengthwise of the barrel to take up slack between the screw threads of the hub and barrel to preload the warp head.

Warping machine. Theodore E. Carlson (to Camille Dreyfus). Can. P. 450 043, July 20, 1948.

In a machine for warping threads, a guide bar over which the threads pass, a reed frame cooperating with the guide bar, wires in the frame for spacing the threads, the wires being bent and means for reciprocating the frame so as to cause the threads to move laterally relative to the guide bar and longitudinally relative to the bent wires.

Warping or beaming machine. Fritz Lambach. Can. P. 450 646, Aug. 24, 1948.

A warping or beaming machine comprising: a drive including a driving shaft, coupling means connected with the driving shaft and arranged for driving engagement with the beam so as to rotate it in dependence on the speed of the driving shaft, automatic controlling means associated with the driving shaft for reducing the speed thereof during the building up of the winding on the beam, and a movable member arranged for contacting engagement with the winding on the beam, the movable member being associated with the automatic controlling means for actuating same for a reduction of the speed of the driving shaft in dependence on the building up of the winding on the beam.

Weaving C 2

Check strap for looms. Sherman D. Lesense (to Graton & Knight Co.). Can. P. 450 426, Aug. 10, 1948.

A loom check strap comprising 2 outer elongated, friction resistant layers of leather and an intermediate reinforcement of substantial thickness therebetween having cords extending throughout the effective length of the strap and bonding means for securing the cords in position whereby

they resist longitudinal stretching of the strap during use and impart stiffness to the strap.

Cloth roll for looms. Benjamin W. Brouwer & Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 491 917, Dec. 20, 1949.

In a cloth roll for use in looms having 2 types of driving clutches of different configurations, the roll comprising a hollow metallic tube of polygonal cross section and a fitting secured to the interior of the tube and having an aperture therethrough to receive one of the clutches, the fitting being so constructed as to leave certain internal corners of the tube unobstructed for engagement with the other of the clutches.

Design and production of figured rayon weaves—3. A. T. C. Robinson. *Silk & Rayon 23*, 1481-82, 1485-86, 1488, 1490 (Nov. 1949).

The simplest way of producing a woven design on a satin is to bring up the figure in weft satin on a warp satin ground. When extra contrast is required a dull yarn may be used for the weft. Detailed constructional data are given for figured crepes, marocains, boucles and brocades.

Design and production of figured rayon weaves. 4. A. T. C. Robinson. *Silk & Rayon 23*, 1627-28, 1630, 1632 (Dec. 1949).

Laminette yarns are made by wrapping a silver or gold plated copper strip closely around a core thread of silk, cotton or rayon, in such a way that the plated strip completely covers the core. Bouillonné yarns are similar to laminette but are loosely wound around core threads of viscose crepe. Instructions are given for the manufacture and preservation of fabrics made from laminette and bouillonné yarns.

Developments in weaving machinery. Anon. *Textile Mfr. 75*, 513-15 (Nov. 1949).

Cites new developments in loom construction which permit higher running speeds than was previously possible and describes new shedding and picking mechanisms, let-off and take up motions, improved beat-up arrangements, automatic weft-supply, and inching reversing and stop motions.

Drop box and circular box motions. W. Middlebrook. *Textile Mfr. 75*, 510-12 (Nov. 1949).

Describes the Cowburn and Peck box motion and the Eccle's motion which work on the rack and pinion principle and are very similar in operation. In the former the rack is moved by a crank while in the latter it is moved by an eccentric.

The features of the circular type box motion are also discussed. The revolving principle places the shuttles in different positions in relation to the reed and thus this type of motion is limited to loose-reed looms for the construction of light and medium weight fabrics.

Drop wire cover and warp brush. John S. Denney. USP 2 491 092, Dec. 13, 1949.

A combination drop wire cover and warp brush for looms, comprising a casing to be mounted on the loom to substantially enclose the drop wires, and a brush disposed on the casing for wiping engagement with the warp.

Eastern Carolina division discusses weaving practices. Anon. *Am. Wool Cotton Reptr. 63,* 9-10, 16 (Dec. 22, 1949).

A report is given on the weaving questions taken up at the fall meeting of the Eastern Carolina Division of the Southern Textile Association. Subjects included are: rewound filling advantages, winding and conditioning practices; normal variation in actual picks per inch; handling patterns and warps; tying ends on loom; cleaning weave room and center filling forks; and the filling of magazines on box looms.

Eliminating reed damage. Gene Reichley. *Textile Age 13,* 98, 100-3 (Dec. 1949).

Suggestions and instruments for avoiding damage to reeds are presented. Included in the discussion are stainless steel reeds, rust in reeds and the removal of rust, damage within dents, damage along the sides of reeds, selection of solders, examination of dent wires, etc.

Filling breaks; yarn strength comparisons. Anon. *Am. Wool Cotton Reptr. 63,* 14-15 (Dec. 29, 1949); *64,* 11-12 (Jan. 5, 1950).

A discussion is presented on the inferiority of the wearing capacity of the filling portion of a fabric as compared with the warp. Results of tests indicate that variation in tension in the filling is one of the major factors for this inferiority in wearing capacity, and that there are operating conditions in a loom that are objectionable for making a woven piece of cloth.

Georgia Operating Executives describe weave techniques. Anon. *Textile Industries 114,* 127, 129, 131, 133-4 (Jan. 1950).

Weaving topics discussed at the fall meeting of the Textile Operating Executives of Georgia are reported.

Georgia weavers compare operating data. Anon. *Textile World 99,* 122-23, 208 (Dec. 1949).

The recent meetings of the Textile Operating Executives of Georgia discussed questions of shuttle bristle and fur, life and cost of loom parts, conditioning filling and prevention of tooth stripping on motor pinions. Cloth quality is usually controlled by a series of inspections and checks by the weaver, fixer, inspector, second hand, and overseer.

HANDBOOK OF WEAVING AND MANUFACTURING. Henry Greenwood. 2nd Ed. London, Sir Isaac Pitman & Sons, Ltd., 1948. 168 p. Price: 15/–

This is the second edition of this work, which first appeared in 1926. It provides in a concise form a wealth of practical information on the various kinds of fibers, types of yarn, details of yarn testing machines, heddles, reeds, calculations, costs, waste allowance, standard weaves, use of rayon, loom drafting, jacquards, sizing, tinting, setting, humidifying, lighting, ventilation, etc. The book should be of particular value to students.

Hydraulic drive for loom lay. Hindle Son & Co. & T. Hindle. Brit. P. 586 605. *Textile Mfr. 74,* 45 (Jan. 1948).

Describes mechanism for actuating a loom lay hydraulically by a cam mounted on a continuously rotating timing shaft. Each piston rod and the rod actuating the corresponding valve are interconnected by a floating lever mounted on the piston rod and also connected respectively to a rod actuated by the control cam and to the valve rod. By this means the lay is caused to reciprocate in synchronism with the displacement of any desired profile of the cam.

Hydraulic picking mechanism. T. Hindle, Hindle, Son & Co., Ltd. Brit. P. 587 414. *Textile Mfr. 74,* 95 (Feb. 1948).

Describes improvements in the picking mechanism of looms in which the shuttle is actuated by a hydraulically operated piston. Hitherto in such mechanism the piston has actuated the shuttle directly and a disadvantage is that there is considerable inertia of the moving parts to be overcome as they attain the necessary velocity for propelling the shuttle. This disadvantage is overcome by actuating the shuttle from the piston through the intermediary of an oscillating lever and a picking stick. By this means the velocity of the piston is considerably less than the required velocity of the shuttle at the commencement of a pick owing to the multiplication of the former velocity by the lever and stick.

Imitation straw fabric. Anon. *Am. Wool Cotton Reptr. 64,* 32 (Jan. 19, 1950).

Woven fabrics which formerly contained rattan or were of the cane type are being replaced by those made of synthetic fibers. An imitation straw fabric is analyzed which is composed of plastic filaments (cotton basis) averaging about 30 denier in size. The filaments are both flat and round at different points regularly throughout their length which gives the heavy yarn more flexibility. The resultant fabric has high strength, is comparatively stiff, and its weight is not very great.

Improved center weft fork. T. Stevenson. Brit. P. 586 662. *Textile Mfr. 74,* 46 (Jan. 1948).

Relates to center weft fork stop motions; hitherto the weft fork has been controlled by a flat spring carried on the slide. A method is described whereby the fork is returned to the horizontal position, in which the fork engages the weft, by a flat or leaf spring mounted on a boss carried on a slide guide fixed to the sley. In this way the pressure exerted by the fork on the weft is a minimum.

Improved rayon and silk loom. Anon. *Brit. Rayon & Silk J. 26,* 56-7 (Dec. 1949).

The Hattersley loom is a shuttle changing loom with 2 shuttle magazines and a 2-cell filling mixing motion. Two feelers are used, one operating from the top, the other from the bottom. The loom stops for the shuttle change. The loom can also be made with 4 box motion and 4 shuttle cells for changing. It is equipped with center filling motion and a loom reversing control that turns the loom to back center only. It also has an automatic let off motion and mechanical stop motion for the warp.

Loom lubrication program. Walter Morris. *Textile Industries 113,* 121 (Dec. 1949).

The importance of loom lubrication is discussed with points to look for in lubricating a loom.

Loom shuttle guard. Boardman & Baron Ltd., J. Sim & W. Sim. Brit. P. 588 387. *Textile Mfr. 74,* 84 (Feb. 1948).

Describes an improvement in the shuttle guard described in Brit. P. 571 773, in which the guard bar is formed with a depending guide surface near its front edge for controlling the motion of a deflected shuttle and guiding it towards a shuttle box.

Looms and hydraulic check therefor. Otto A. Kottemann (to Wm. D. Dodenhoff). Can. P. 450 782, Aug. 24, 1948.

A loom having a shuttle, a picker stick therefor, a liquid filled, positive pressure brake actuable

by the picker stick, the brake having a bleeder means whereby the momentum of the shuttle is absorbed, and a spring pressed valve for the bleeder means.

Loom beat-up mechanism. D. W. Shimwell. Brit. P. 587 025. *Textile Mfr. 74,* 46 (Jan. 1948).

Relates to looms in which the shuttle boxes are mounted for independent movement with relation to the lay and reed, and mechanism is described to provide means for operating the lay and reed in order to ensure that the latter move in perfect unison with the shuttle boxes.

Loom shuttle. E. P. Sanderson. Australian P. 134 863, Mar. 18, 1947.

A loom shuttle is fabricated from wood and has a deposited metal covering thereon.

Loom shuttle guard. A. Taylor & H. Hall. Brit. P. 588 010. *Textile Mfr. 74,* 97 (Feb. 1948).

A shuttle guard for a loom comprises a folding 2-part guard having articulated link-like ends, a pivotal mounting for attaching one part to the lay, and guide means mounted on the lay for supporting and holding the guard in horizontal extended position so that it can be folded to lie against the lay for access to the warp threads, while restraining it from rising bodily.

Mechanical stop motion for looms. Geo. F. Bahan (to Bahan Textile Machinery Co., Inc.). USP 2 489 849, Nov. 29, 1949.

This invention provides a live frog mounted on both sides of the loom whereby a dagger on each side of the loom, which is integral with the conventional protection rod, may engage either one or both of the live frogs and thus transmit movement to the shipper handle to shut off the loom.

Method and means for the manufacture of cut filling pile fabrics. Owen D. Frost (to Crompton-Shenandoah Co.). USP 2 490 041, Dec. 6, 1949.

In a loom including warp harnesses, shuttle and reed, adapted for the weaving of filling pile fabrics including warpwise races formed by the floating of pile filler threads over a plurality of warp threads, the improvement comprising at least one special sheddable harness, a plurality of continuous wire loops threaded through the special harness and the reed, and a plurality of cutters between which the wire loops pass on their continuous course.

Model X-2 lubrication charts. Anon. *Textile Industries 114,* 69-72 (Jan. 1950).

Three lubrication charts for the Model X-2 looms, prepared by the Draper Corp., are reproduced in reduced size. The charts afford mills a graphic illustration of modern lubrication practices with lubrication points, intervals of lubrication, and method of lubrication shown. The charts are made for 3 systems of lubrication: (1) the grease gun, (2) grease applied with brush, and (3) oil delivered by oil can.

Pepperell experiments with aluminum-alloy lays. Earle Mauldin. *Textile World 99*, 119 (Dec. 1949).

The shuttle life on 96 X-2 Model looms with aluminum lays is compared with the shuttle life on 96 E-Model looms with wooden lays. The new looms had shuttle lives as high as 10 times that of the old looms. The new lays are made of a high strength, specially heat-treated extruded aluminum alloy.

Picker bumper for looms. Curt Saurer (to The Ohio Rubber Co.). USP 2 491 909, Dec. 20, 1949.

In a picker bumper for looms, the combination of a main member of resilient compressible material having sloping side walls connected to form a corresponding cavity in the larger face thereof, a rigid attaching element laterally encircling the member adjacent such face, a second member of similar material, solid in cross-section, projecting centrally from and secured to the smaller face of the first member, and a rigid plate interposed between the members, the plate having a flange laterally encircling the first member adjacent the smaller face thereof.

Picker check for looms. Benjamin Higginson. USP 2 490 301, Dec. 6, 1949.

This invention provides shock absorbing means between the usual parallel or support of the loom and the rocker shoe attached to the picker stick, the shock absorbing means including a coil spring with means for adjusting the tension of the spring in accordance with the requirements.

Picking mechanism and picker stick therefor. Wm. A. Blanchard (to Crompton & Knowles Loom Works). USP 2 491 083, Dec. 13, 1949.

In picking mechanism for a loom having a lug strap, a picker stick having sections of progressively diminishing width from the lower end to the upper end, the stick having upwardly facing shoulders between the sections, a support engaging certain of the sections and having a downwardly facing shoulder engaging one of the shoulders on the picker stick, and a holder for the lug strap on the support.

Pneumatic thread holder for weft replenishing looms. Gustaf H. Utter (to Crompton & Knowles Loom Works). USP 2 491 142, Dec. 13, 1949.

In a pneumatic thread holder for the weft ends extending from reserve bobbins in a weft replenishing loom, a tubular member in which subatmospheric pressures exist, a sheet metal member bent on itself to form 2 spaced walls between which is located a thread compartment, one of the walls having a thread receiving aperture along one side of which are located teeth integral with the sheet metal member and defining thread receiving notches, and means securing the sheet metal member to the tubular member.

Positive warp let-off motions. H. Lakeland. Brit. P. 586 622. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes an improved warp let-off motion.

Progress in lug strap construction. H. E. Wenrich. *Rayon & Syn. Tex. 31*, 44-6 (Jan. 1950).

The results of tests in a weave shed to determine which lug straps stood up best in actual operation are reported with particular reference to 4 straps which gave good performance. The characteristics of the 4 straps are noted and their performance under certain conditions are described briefly. The disadvantages of the straps described are also noted.

Protector mechanism for looms. Wm. A. Blanchard (to Crompton & Knowles Loom Works). USP 2 491 916, Dec. 20, 1949.

In protector mechanism for a loom, a protector rod, a protector dagger through which the rod passes, a pair of tubular clamping members slidable in the dagger along an axis extending transversely of the rod, one member having a wedging surface engaging one part of the rod and the other member having another wedging surface engaging another part of the rod, and means passing through the members drawing the latter together by movement along the axis to effect tight engagement of the wedging surfaces against the parts of the protector rod corresponding thereto.

Protector rod for looms. Wm. A. Blanchard (to Crompton & Knowles Loom Works). USP 2 490 403, Dec. 6, 1949.

In a dagger unit for a loom protector rod, a pair of axially aligned rod members, a coupling member located between and extending into the rod members and formed with an intermediate section between the rod members, and a plurality of flat dagger forming elements having perforations fit-

ting the intermediate section and located between the rod members, all of the parts of the unit being united by a bonding metal.

Small-ware looms. W. Matterson. Brit. P. 586 865. *Textile Mfr. 74,* 46 (Jan. 1948).

Describes a shuttle for a narrow-ware loom, consisting of a wedge-shaped body to occupy the major portion of the space at the back of the warp shed, between the front and the back of the batten. The body, which is engaged with guiding means on the batten is hollowed out between the guiding means to provide an interior space for accommodation of a quill. This method enables more weft to be carried in the shuttle.

Shuttle box plate. Everett H. Ashton (to The M. W. Kellogg Co.). USP 2 493 611, Jan. 3, 1950.

A front box plate for a loom comprising an elongated metal body having an inner upright face and a recess on its inner upperside, a lining of cushioning material secured to the face and presented an upright shuttle guide surface extending therealong, a metal guide plate secured to the top of the metal body and projecting inwardly from the surface, the plate having a recess on its inner underside, and a lining of cushioning material in the latter recess presenting on its underside a shuttle guide surface transverse to the upright guide surface and spaced above the upper edge of the first mentioned lining as a result of the first mentioned recess.

Thread guide for pneumatic thread removers. Jos. J. Hemingway (to Crompton & Knowles Loom Works). USP 2 490 436, Dec. 6, 1949.

In a weft replenishing loom having a lay carrying a shuttle box formed with a front wall extending upwardly from the floor plate of the shuttle box, a pneumatic thread remover located between the shuttle box and the cloth and effective to engage the weft of the outgoing bobbin incident to a weft replenishing operation and cause forward movement of the weft relatively to the front wall as the lay moves rearwardly, and a thread guard mounted on the front wall and extending below the top surface of the floor plate in position to engage the weft end and prevent the same from moving under said front wall as the lay moves rearwardly.

Warp beam. Wm. H. Levers & Richard H. Baines (to Celanese Corp. of Am.). USP 2 493 151, Jan. 3, 1950.

A warp beam provided with movable flanges making a sliding fit on the beam and having outwardly facing bosses the outer edges of which are each

formed into at least 2 identical cam surfaces, the flanges being held against outward displacement by means of studs adapted to engage the cam surfaces and screwed into identical parallel sets of tapped holes spaced along the beam, the several sets of holes being equally spaced around the beam at each end, one stud and one set of holes being provided for each cam surface and the flanges being held against rotation by set screws in the bosses engaging the surface of the beam, the throw of the individual cams being equal to at least half the distance between the adjacent holes in each set.

Warp beam for circular weaving machines. Victor M. J. Ancet (to Marius Fayolle). Can. P. 449 577, June 29, 1948.

In a circular weaving loom a warp supply comprising 2 rollers facing each other and each carrying half of the warp, means for distributing each half warp in a semi-circle braking means acting on each of the rollers, and single tension means acting on both the braking means.

Weft detecting shuttle. Felix Daniels (to Celanese Corp. of Am.). USP 2 493 114, Jan. 3, 1950.

A shuttle wherein an electrical feeler, including a pair of reciprocating plungers, operates the changing mechanism.

Weft stop motion. F. L. Smith, Hattersley & Sons, Ltd. & G. W. Shackleton. Brit. P. 587 670. *Textile Mfr. 74,* 95 (Feb. 1948).

Describes an improved weft stop and brake mechanism wherein the brake stops the loom immediately after the weft stop indication.

Weft straightening apparatus. J. D. Robertson. Brit. P. 586 575. *Textile Mfr. 74,* 45 (Jan. 1948).

Apparatus for straightening the weft threads of a cloth which consists in advancing the cloth so that the web has approximately a 90° engagement with a tiltable web-guiding member, or with each of a number of such members, and twisting one or a number of spread sections of the web by tilting the guides to increase the length of travel of one edge of the web over the length of travel of the other edge of the web to shift the weft threads into right angular relation with the warp threads while maintaining that portion of the web free from any tendency toward displacement.

What do we mean by good weaving. IV. Morland. *Silk & Rayon 23,* 1634 (Dec. 1949).

Describes the "Little Uster" mechanical knotter

which, instead of attempting to imitate the rather complex actions of hand twisting, knots the 2 ends of yarn together. The knotter works up to a speed of 20,000 knots per hour, depending upon the yarn. It is particularly useful when a high proportion of fine-set warps are being woven.

Woven fabric designing. D. M. Cooper & H. Blackburn. Australian P. 134 615, Nov. 14, 1946.

To enable a designer, before a fabric is woven, to visually appreciate what the appearance will be of the different color combinations of the finished fabric, a series of blocks are adapted to represent single raised ends, 2-floats, and multi-floats of weft or warp in a textile fabric, and from such blocks any desired design can be built-up.

Knitting C 3

Automatic welt turning mechanism of straight-bar knitting machines. Harry W. Start & Ernest Start. Can. P. 449 184, June 22, 1948.

Welt turning mechanism for a straight-bar knitting machine having associated therewith pivoted welt wire holding arms adapted to be turned about their pivots to bring the ends of the arms above the work to receive the welt wires and supports on the arms to hold the ends of take-up straps so that the latter will engage with the welt wires when tension is applied thereto.

Control for patterning wheel on knitting machine. A. Bray & Sons Ltd., T. C. Short & J. H. Painter. Brit. P. 587 605. *Textile Mfr. 74*, 95 (Feb. 1948).

A circular knitting machine is described having a pattern wheel which can be selectively driven through a rachet-and-pawl mechanism, and having a gapped ring cam rotatable in unison with the pattern wheel and coacting with the pawl and with a spring-pressed arm carried by a rod which is movable to different positions by a 2-level cam surface on the main cam drum. In the low-level position of the rod the arm is inoperative, but when the rod is moved to high-level position the ring cam holds the arm until, when the pattern wheel reaches a predetermined position, the spring forces the arm through the gap in the ring cam to raise the pawl and thus disconnect the drive. The arm remains in this position until the rod returns to the low-level position and the arm to the inoperative position.

Dial holding mechanism for knitting machines. Robt. H. Lawson (to Scott & Williams, Inc.). Can. P. 450 160, July 27, 1948.

A circular knitting machine having in combination a pair of needle carriers, a pair of cam carriers, means to cause relative rotation between the pairs of carriers, and means to hold the carriers of one pair relatively fixed comprising a block having an arcuate face mounted in fixed position relative to a carrier of the one pair, a slotted circular disc mounted for rotation in the curve of the arcuate face of the block and on an axis fixed relatively to the other carrier of the one pair, yarn guides fixed relatively to the other pair of carriers and means fixed with respect to the other pair of carriers for continuously rotating the disc with the rotation of the slots of the disc permitting passage of the yarn guides between the disc and the block.

Draw mechanism of straight bar knitting machines. John E. Lynam & Patrick G. McCarthy (to William Cotton Ltd.). Can. P. 450 275, Aug. 3, 1948.

In Coulier or draw mechanism for a straight bar knitting machine incorporating a driven member movable to and fro rectilinearly and a driver, below it, almost movable to and fro, a connection for driving the member from the driver comprising an upstanding rotary spindle means connecting the driver to the lower end, and means connecting the driven member to the upper end of the spindle.

Flat knitting machine. Vanity Fair Mills, Inc. Australian P. 134 886, Aug. 26, 1946.

A flat tricot-type knitting machine employing sinkers, thread guides, hook needles and needle hook closers comprises a rock shaft carrying bearings and means such as eccentrics for rocking the rock shaft through a link. Needle bar carrying shafts are reciprocatingly mounted in the bearing and support a needle bar having the hook needles mounted thereon. Means are provided for operating the needle hook closers to effect knitting. Modifications of the machine employ stationary thread guides and take-up mechanism are described and claimed.

Hosiery knitting machine. B. Taylor & G. A. Bradbury. Brit. P. 587 463. *Textile Mfr. 74*, 95 (Feb. 1948).

A full fashioned hosiery machine having a racking screw for the narrowing boxes and ratchet mechanism for racking the screw round, has a mechanism for preventing over-racking of the screw and for ensuring that the points register with the needles. The mechanism comprises a ratchet wheel and a stop pawl arranged, when

engaged, to terminate racking movement of the screw, and a bluff for the pawl. Mechanism is described for operating the bluff in timed relation with each racking movement to disengage the pawl when a rack is to be made and then to procure engagement of pawl and wheel.

Knitted fabric. Oscar Fregeolle (to Hemphill Co.). Can. P. 450 427, Aug. 10, 1948.

A method of knitting including the feeding of elastic and inelastic yarns, the elastic yarn being fed in the initial course to form a selvedge and thereafter inlaid at spaced wales in each course and the inelastic yarn being so fed and knitted as to be drawn into independent stitches at alternate wales in consecutive courses but held and tucked at intermediate wales, whereby alternate strands of elastic will be inlaid to be held at intermediate wales while intermediate strands of elastic will be threaded between tuck loops in intermediate wales and plain loops at alternate wales.

Knitted fabric with elastic selvedge. Robt. H. Lawson (to Scott & Williams, Inc.). Can. P. 450 608, Aug. 17, 1948.

A knitted fabric having selvedge or makeup courses formed exclusively of elastic thread, the elastic thread having a stitch in each wale of the second course, and being interknitted at spaced wales and floated across intervening wales in at least 2 courses following the second course, inelastic yarn being knitted in courses knitted subsequently to the knitting of the float courses and elastic thread incorporated in at least some of the subsequent courses.

Knitting element of knitting machinery. Geo. L. Bolden & Robt. Peel (to F.N.F., Ltd.). Can. P. 449 342, June 22, 1948.

A machine knitting needle having a tubular shank, the whole of one end of which is swaged to form a pin bent to the shape of a hook, the pin being offset to one side of the shank and an opening being formed in the other side for the passage of a tongue which alternately overlaps the needle hook and is withdrawn into the shank.

Knitting element of knitting machinery. Robt. Peel (to F.N.F., Ltd.). Can. P. 449 343, June 22, 1948.

A machine knitting needle comprising a member providing a tubular guide for a tongue and formed at one end with a bevelled portion terminating in an integral extension, and a strip permanently secured along the tubular member and along the extension thereof, the extension and the adjacent

portion of the strip being formed into the shape of a hook.

Knitting machine. John E. Lynam & Patrick G. McCarthy (to William Cotton, Ltd.). Can. P. 449 332, June 22, 1948.

In a knitting machine, the combination of a rotary member having 2 oppositely directed endthrust cams, abutment means movable selectively into the track of either cam and for thereby producing endwise displacement of the rotary member when the selected cam rotates into contact with the abutment means, fluid-pressure operated means for producing the selective movement of the abutment means, and a patterning device for controlling the fluid-pressure operated means.

Knitting machine. Oscar Fregeolle (to Hemphill Co.). Can. P. 449 356, June 22, 1948.

In a knitting machine provided with main and auxiliary knitting cams, a fixed sinker cam cap having on the auxiliary side a center sinker cam for drawing out sinkers which consist of 2 sides converging substantially to a point, a center sinker cam at the main side, 2 fixed casting off cams symmetrically positioned on opposite sides of the main center sinker and 2 flopper cams also symmetrically positioned on opposite sides of the center sinker cam, one of the flopper cams being below the corresponding casting off cam and the other above its corresponding casting off cam.

Knitting machine. Vincent Lombardi (to Lombardi Knitting Machine Co., Inc.). Can. P. 449 367, June 22, 1948.

In a knitting machine, in combination, a needle bed, a series of independent needles movably mounted thereon, a yarn-guide swingable in at least a partial rotation through an arc having a portion lying in front of the needles and extending therefrom to the rear of the needles at each side of the portion, the radius of the arc being at least as long as the distance between the far sides of a pair of needles, and means for moving the yarn guide through the arc for supplying yarn to certain of the needles, the moving means comprising a gear, a rack for operating the gear, and means for selectively operating the rack.

Knitting machine and method. Oscar Fregeolle (to Hemphill Co.). Can. P. 450 428, Aug. 10, 1948.

A method of incorporating a non-elastic and elastic yarn in a plain knitted fabric by drawing the non-elastic yarn over sinker edges and drawing the elastic yarn over the nibs of sinkers posi-

tioned above the aforesaid sinker edges.

Knitting machine patterning mechanism. W. Cotton Ltd. & G. Wilders & J. E. Lynam. Brit. P. 586 962. *Textile Mfr. 74,* 46 (Jan. 1948).

Describes a construction of patterning mechanism on straight bar knitting machines, whereby elements of the machine may be selectively moved by power means. The mechanism comprises a set of patterning members individually-movable to and fro, a set of actuating members associated with them and selectively movable each between 2 alternative positions each of which is an operative position in which it is positioned ready to move an associated patterning member. At least one patterning device is provided for selectively moving the actuating members between their alternative positions, and power means effect bodily displacement between the sets and for causing the actuating members to move the patterning members in one direction or the other according to the positions occupied by the actuating members.

Knitting machine stop motion. Van Raalte Co., Ind. Brit. P. 587 406. *Textile Mfr. 74,* 95 (Feb. 1948).

Describes a stop motion wherein the necessity for individual drop wires for each thread is obviated.

Knitting symmetrical fabric. Hemphill Co. Brit. P. 586 770. *Textile Mfr. 74,* 46 (Jan. 1948).

Describes a method of producing a more symmetrical and better looking fabric upon a circular, independent needle, knitting machine. A body yarn is drawn over a part of the backs of radially motionless sinkers having a definite height and through the needle loops of the previous course. Casting off the previously formed needle loops is produced by means of the throats of the sinkers acting upon the intervening previously formed sinker loops only and causing the newly drawn sinker loops to pass from the backs to the throats of the sinkers over the tops of the nibs.

Knitting take-up device. F. Lambach. Brit. P. 587 963. *Textile Mfr. 74,* 96 (Feb. 1948).

Describes a take-up device including a take-up roller for taking up the fabric knitted by a knitting machine and including a tension roller for engagement with the fabric. The tension roller is carried by at least 2 spaced points by a guiding mechanism which holds the spaced points of the tension roller in planes parallel to each other during a displacement of the tension roller.

Manufacture of stockings and the like. Jean Garrie. USP 2 491 173, Dec. 13, 1949.

This invention is an improvement in the manufacture of stockings, characterized by the fact that, for obtaining a length of stocking greater in the hind part than in the front part, there is given to the loops of one and the same row, in the desired number of loop rows that are distributed over the whole length or a part of the length of the stocking, a greater length in the part intended to form the hind part of the stocking than in the part intended to form the front part, this being effected without any interruption of any row in the median or central part of the stocking.

Novel hosiery heels are produced in wide range. H. B. LeFeaux. *Textile World 99,* 108, 224, 226 (Dec. 1949).

Colored and other novelty heels are coming back into style. These are made using a reinforced selvedge attachment and added splicing blocks and stops. Both Reading and Kalio machines make use of a variable cam shaft rocker that has a wide range of coverage. The split-sole attachment gives additional stops when needed for various heel designs. Many of the new heels are illustrated.

Nylon warp knitting. Anon. *Am. Wool Cotton Reptr. 63,* 9-10, 15-17 (Dec. 29, 1949).

Results of experiments in knitting identical nylon warps on 4 machines (by E. I. du Pont de Nemours & Co.) show that minute variation in the position of knitting elements is sufficient to radically change the performance of the machine. Concepts, formulated as results of this work, are discussed as they apply to nylon yarns in tricot knitting. The procedure for setting and adjusting machines using the Imagegraph and other instruments is also described.

Production of knitted fabrics. Albert F. Guyler, Wm. H. Boaler & Wm. E. Stanley (to Claude G. Bonard). Can. P. 450 255, Aug. 3, 1948.

A method of warp-knitting comprising knitting a circular series of threads in turn into a circular series of stitches, previously formed in a circular series of threads, the knitting being effected at least 2 points moving progressively round the circular series of threads and stitches and in the intervals between the occasions on which each thread is knitted, guiding that thread to and fro within a small range circumferentially of the circular series whereby each thread is confined to a small number of wales in the resulting warp-knitted fabric.

Production of knitted fabrics. Albert F. Guyler, Wm. H. Boaler & Wm. E. Stanley (to Claude G. Bonard). Can. P. 450 256, Aug. 3, 1948.

Tubular warp-knitted fabric comprising a large number of warp threads knitted together in at least 2 continuous helical series of stitches, the repeated knitting of each stitch into a preceding stitch forming a large number of wales crossing the helical series, each warp thread being confined to a few wales and passing from one wale to another between successive stitches into which the thread is knitted.

Rectilinear loom for knitted fabrics. Luis B. Moreu, Q. A. Serra & Martin F. Autran. Can. P. 449 187, June 22, 1948.

In a straight knitting machine having rows of needles, sinkers and sinker levers, a cylindrical drum rotatable about an axis extending parallel to the row of needles, plates of uniform thickness carried on the circumference of the cylindrical drum and arranged for engaging and imparting a successive movement to the row of sinker levers for actuating the sinkers during one half revolution of the drum, while during the other one half revolution of the drum the sinker levers are caused to perform a succeeding actuating movement by engaging the circular circumference of the drum which last-named movement is the reverse of the preceding movement.

Rib knitted fabric. Frank Bonser (to Interlock Patents Ltd.). Can. P. 449 507, June 29, 1948.

A method of producing, on a machine having 2 beds of double latch needles, knitted fabric embodying ground loops on both faces of the fabric formed from the same ground yarn or yarns, which consists in feeding locking thread to the needles of each bed, locking ground loops in each face of the fabric in the manner described by the same locking yarn or yarns and during certain phases in the knitting process maintaining the loops of ground thread and the loops of locking thread on the needles of one bed in spaced relationship by a length of wire or the like positioned between the needles of the 2 beds.

Selvedge for knitted fabrics. Wm. L. Smith, Jr. (to Hemphill Co.). Can. P. 450 296, Aug. 3, 1948.

A knitted stocking top having an elastic yarn incorporated therein at spaced wales and in such a manner as to constitute an elastic garter top, the elastic yarn being incorporated at a selvedge by passing a relatively greater number of rounds of the yarn through sinker loops of the first knitted

course of non-elastic material, the elastic yarn then being tucked at alternate wales of the fabric and with non-elastic yarn stitches thereby to present a non-curling edge to the fabric.

Shaped splicing by needle selection. H. Wignall. *Textile Mfr. 75*, 516-17 (Nov. 1949).

The appearance of socks may be enhanced by proper shaping of the reinforced yarn areas known as "splicing". For example, ankle-slimming effects are produced by various modifications of the 3 basic heel types, point, cuban and pyramid. Modern methods of needle selection insure a clear outline of the reinforced area.

Stocking heel knitting. F. H. Robottom. Australian P. 134 690, Oct. 17, 1946.

A method of manufacturing the heel of a stocking blank on a circular knitting machine as a selvedge band of fabric united at its ends to the fabric at the leg and at the foot bottom consists in knitting the band by reciprocation on a group of heel-needles while holding the other needles inactive and in causing the extreme needle at each edge of the group to knit only in spaced courses. A stocking produced by rotation on a circular knitting machine having a leg shaped by seaming together cut edges, a heel knitted with selvedge edges seamed to initial courses of the foot bottom and closed by a seam joining cut edges, and a toe punch having side seams joining cut edges, is also claimed.

Stop mechanism for knitting machines. Horace C. Grant (to Egan Cotton Mills, Inc.). USP 2 491 970, Dec. 20, 1949.

In a stop mechanism for a machine knitting plies of roving together, the combination of a roving guide, rows of front and rear vertically reciprocating needles, a contact button mounted for movement to contact a needle of one such rows when raised in the absence of a ply on the guide, means for shifting the button out of the path of the needles when raised and a control circuit for the machine including the button and needle.

Stop motion for knitting machines, etc. Van Raalte Co., Inc. Brit. P. 586 482. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes a stop motion for knitting machines in which displacement of a thread from its normal path effects machine stoppage, without the interposition of drop wires. Means are supplied for exerting an electrostatic force on the threads so as to urge broken or slack threads in a direction to actuate the stop means. The electrostatic field may be generated in a variety of ways.

Straight-bar knitting machine. Harry W. Start & Ernest Start. Can. P. 450 051, July 27, 1948.

In chain driving mechanism for the reciprocating parts of straight-bar knitting machines the combination with the sprockets round which the driver passes to move the reciprocating parts from rest up to their maximum speed and vice versa of discs having openings formed therein to engage with the driver and take the strain thereon as it passes round the sprockets.

Straight-bar knitting machine. Harry W. Start & Ernest Start. Can. P. 449 182, June 22, 1948.

A straight-bar knitting machine comprising in combination with each knitting head of the machine of one or more thread carriers, a member to drive each thread carrier, oppositely disposed levers pivoted on the member, a reciprocating driving bar for each member, abutments on each reciprocating driving bar to engage with the levers on its associated member to drive the latter, and stops to limit the movement of the members and means to disconnect the levers from the abutments when the members engage with or are close to the end stops.

Straight-bar knitting machine. Harry W. Start & Ernest Start. Can. P. 449 183, June 22, 1948.

Mechanism for driving the reciprocating parts of straight-bar knitting machines comprising 2 endless chains disposed in parallel planes, a driver disposed between the chains and carried thereby, sprockets to support the chains, means to drive the chains and means to connect the driver to the reciprocating parts.

Straight-bar knitting machine. Harry W. Start & Ernest Start. Can. P. 449 185, June 22, 1948.

Mechanism for driving the thread carriers of straight-bar knitting machines comprising in combination a thread carrier driving bar, a catch mounted on a bar to engage with the driving bar, a catch operating cam mounted on a reciprocating slide, a driving connection between the reciprocating slide and the catch bar and means to move the cam relatively to the catch at the appropriate time to move the catch into engagement with or disengage it from the driving bar.

Straight-bar knitting machine. Harry W. Start & Ernest Start. Can. P. 449 186, June 22, 1948.

A straight-bar knitting machine having in combination needles, sinkers, knocking-over bits secured at one end in a bar disposed on one side of the needles, arms on the bar, a second bar disposed on the other side of the needles, tricks in the second

bar to receive the other ends of the kocking-over bits, arms on the second bar pivoted to the arms of the other bar, and a catch on one bar to engage with a pin on the other bar to hold the 2 bars in operative relationship.

Straight-bar knitting machines. The Trent Eng. Co. Ltd. & S. W. B. Lacey. Brit. P. 586 927. *Textile Mfr. 74*, 46 (Jan. 1948).

The object of the invention is to provide a steady drive for the reciprocating parts of a straight-bar knitting machine. The reciprocating parts are connected to a piston in a cylinder which is reciprocated by fluid pressure supplied by a pump and admitted to the cylinder through inlet valves. A pressure controlling device may be provided to control the rate of flow to the cylinder and provision may be made for the piston to stand at the end of each stroke for the knitting of the course drawn. A cut-out may also be provided so that the piston can be put out of action during fashioning operations.

Sweater construction. Wm. J. Kuehnel (½ to John G. G. Merrow). USP 2 493 675, Jan. 3, 1950.

A tubular knit sweater having a body portion and sleeves, the sleeves being tapered from top to bottom and having the same number of wales throughout, the stitches being gradually enlarged progressively from the wrist to the upper portion of the sleeves and the stitches being gradually enlarged progressively from the inner to the outer portions of the sleeves.

Tensioning fabric in flat knitting. Brit. Text. Mfg. Co. Ltd., C. D. Alexander & S. Gibson. Brit. P. 587 209. *Textile Mfr. 74*, 47 (Jan. 1948).

Describes apparatus for tensioning fabric being knitted in a power-operated flat frame knitting machine. Unitary tension members have fingers positioned to pass down through loops of selvedge stitches and to be closely adjacent to the periphery of a take-down roller. This prevents any loop distortion and maintains the original stitch formation along the full width of the fabric to the nip of the take-down rollers.

Thread guide for knitting machine. Roy C. Amidon (to Vanity Fair Mills, Inc.). Can. P. 449 559, June 29, 1948.

In a knitting machine, a thread guide comprising a block having a bank of parallel guide blades, each of the blades having an eye and means for holding a thread passing through the eye flat against the blade for a substantial distance from

the eye toward the block, the means including at least one projection from the edge of each blade at a substantial distance from the eye about which projection the thread passes.

Thread guide rocking mechanism. Roy C. Amidon (to Vanity Fair Mills, Inc.). Can. P. 449 558, June 29, 1948.

In a flat knitting machine, a racking frame, and means for mounting a thread guide on the frame.

Treatment of stockings and other knitted articles. Luis Heldmaier. Can. P. 449 434, June 29, 1948.

Apparatus for pre-boarding or plasticizing shaped textile articles, more particularly nylon stockings, including an endless conveyor carrying forms for the reception of the shaped textile articles and a pre-boarding or plasticizing chamber through which the articles on the forms are passed due to movement of the conveyor, characterized by the provision, firstly, of a fan for circulating live steam and hot air through the pre-boarding or plasticizing chamber in a substantially closed circuit and, secondly, of one or more electric heaters for heating the circulating air to the desired temperature.

Welt turning mechanism. W. Cotton Ltd. Brit. P. 587 495. *Textile Mfr. 74*, 95 (Feb. 1948).

A straight bar knitting machine having welt turning mechanism has a welting instrument having a steep incline leading backwards up from the hook to the ledge and having the tip of the hook so disposed as to leave a gap, for the entry of the thread to the hook, of a width in the order of the thickness of the thread.

Welt turning mechanism in straight bar knitting machine. Wm. A. Cooper & Wm. G. MacDonald (to William Cotton Ltd.). Can. P. 449 966, July 20, 1948.

In a Cotton's patent or other straight bar knitting machine having welt-turning mechanism, the combination of an auxiliary presser for every second needle, means for operating the pressers at the commencement of the welt, to press every second needle to cast off its thread kink of the initial welt course, means for operating them at the termination of the welt to deflect each second needle toward the plain side of the needle line to transfix the kinks offered by the welting instruments, and means for raising the pressers to lift the transfixed kinks for the retraction therefrom of the welting instruments.

Special fabrics C 4

Adhesive thread and fabric. Marinus Seckel. USP 2 491 396, Dec. 13, 1949.

A woven fabric adapted for use in the uniting together of 2 other layers of fabric, in which each of the threads woven in at least one of the 2 directions has potential adhesive properties, characterized in that the threads are composed of at least one thread of a potentially adhesive material and at least one thread of greater length than the first mentioned thread, the latter mentioned thread being disposed in spaced windings around the first mentioned thread.

Air filter material. The Felters Co. Australian P. 134 897, Nov. 10, 1949.

To remove solid materials from a gaseous stream in which they are entrained a filter material comprises a fibrous body the fibers of which are felted together and impregnated with an auxiliary substance in small fragments characterized in that the fibers are predominantly of wool and that the auxiliary substance is a resinous material, such material being introduced into the felt as a solution or equivalent dispersion and such resinous material after drying of the felt having been fractured into small fragments by means such as bars.

Carpet construction. John E. Gronenberg. Can. P. 450 641, Aug. 24, 1948.

As a new article of manufacture, a carpet having rows of standard U-shaped pile tufts and in addition auxiliary U-shaped tufts arranged in parallel and straddled relation with certain of the standard pile tufts, additional auxiliary U-shaped tufts arranged in interspersed relation with, and at right angles to, the standard pile tufts.

Chenille making machine. Jos. L. Wilmsen. USP 2 491 292, Dec. 13, 1949.

This invention provides an improved forming plate for chenille making machines.

Creel and spool for cut filling pile looms. Owen D. Frost (to Crompton-Shenandoah Co., Inc.). USP 2 490 042, Dec. 6, 1949.

This invention consists of a multiplicity of horizontal shafts arranged in a vertical series, one above the other. On each of these shafts there are mounted, in a non-rotatable manner, a plurality of spool cases, each of which is provided on its front face with a slot through which the wire can be unwound from the spool enclosed in the case, and on the rear face, with an opening pro-

viding access to the spool to facilitate back-winding in case of slack.

Flocking apparatus. Albert J. Ammerall (to Mohawk Carpet Mills, Inc.). USP 2 489 846, Nov. 29, 1949.

The new apparatus includes a hopper for holding a supply of flock and containing an agitator which breaks up lumps and distributes the flock throughout the hopper. The flock is withdrawn from the hopper at the lower end thereof at a substantially uniform rate by power driven means and is then fed to a rotary cylinder covered with card clothing. Beyond the point at which the flock is fed to the cylinder means are provided for knocking lumps of flock from the teeth on the cylinder and returning the flock so removed to the feeding means. The flock carried by the cylinder is removed therefrom by a fancy roll and drops upon the adhesively coated backing sheet traveling beneath the cylinder.

Glass fiber laminates. A. P. Thurston. Brit. P. 586 793. *Textile Mfr. 74,* 46 (Jan. 1948).

Describes a method of producing glass fiber synthetic laminates, by applying a urea type resin to the surface of the glass fibers and curing the resin. Prior to applying the resin there is provided on the surface a compound which is capable of providing under the action of heat, an acid which will catalyze the cure of the resin.

Machine for making pile fabrics. Leslie M. Ballamy (to High Speed Machines). USP 2 489 513, Nov. 29, 1949.

In a sewing or tufting machine of the type including a plurality of needles which are reciprocated in a plurality of phases and a like number of oscillatable looper members which are individually and respectively cooperative with the needles for forming loops, the combination with the looper members of a single shaft supporting all of the members for movement together as a unit, and drive means for driving the shaft and looper members in frequency relation with the phases of the needles so that the looper members oscillate for each reciprocation phase of the needles.

Manufacture of pile fabrics. Wilhelm F. Fuhrhop & Hans Van Issum. USP 2 491 258, Dec. 13, 1949.

A process for manufacturing a pile fabric, which comprises superposing layers of processed fibrous substance with the fibers of adjacent layers in approximately parallel relation, consolidating the layers with an alginic substance to form a block,

cutting the block transversely of the run of the fibers into sections, removing a portion of the alginic substance to expose the ends of the fibers, applying a backing to the ends of the fibers of each section, and removing the remaining alginic substance by means of a solvent.

Non-woven cotton fabrics for plastic laminations. Anon. *Indian Textile J. 60,* 32, 94 (Oct. 1949).

Recent experiments disclose that the use of non-woven fabrics in various plastic laminates presents greater possibilities; non-woven fabrics can be produced more speedily and at less cost than woven fabrics. As a result of these experiments it has been found that: 1) the tensile strength of the web-base laminates increases with fiber length; 2) laminate strength increases with degree of fiber orientation; 3) flexural strength was not significantly affected by either staple length or degree of orientation except in the case of a ½ inch fiber length; 4) moisture absorption, impact strength, and electrical properties are dependent on the type of resin and not the web; 5) cross-plying of web yields much higher tensile strength in both directions; 6) the lighter the web for a given number of plies the stronger the laminate; 7) staple length and orientation have little influence on moisture absorption and dimensional stability; 8) web-base laminates give impact strength equal to or better than fabric-based laminates.

Pile fabrics. W. F. Fuhrhop & H. van Issum. Brit. P. 588 548. *Textile Mfr. 74,* 84 (Feb. 1948).

A method of producing a pile fabric having a texture of determined density simulating woven pile fabric, comprises arranging yarn on rods or in determined spaced relation to suit the weftwise density, and assembling the yarn on the rods to suit the warp density. The suspended yarn is consolidated by means of a consolidating medium, and transverse sections of the consolidated yarn are formed. Sufficient of the consolidating medium of each section is removed to expose yarn ends, the exposed yarn ends are fixed in a backing, and the remainder of the consolidating medium is removed.

Pile material. Frederick G. Dodge (to Camille Dreyfus). Can. P. 449 578, June 29, 1948.

Process for the production of pile materials, which comprises associating a thermoplastic material in filamentary form in substantially parallel relationship to form a bundle and causing the filamentary thermoplastic materials to become fused to each other at a point along the length of the bundle by subjecting the materials to an elevated tempera-

ture so as to cause the filamentary thermoplastic material to form at the area of fusion a substantially unitary structure.

Process of laminating. Carleton S. Francis, Jr. (to Sylvania Industrial Corp.). Can. P. 449 926, July 20, 1948.

The continuous process of producing a waterproof fabric comprising, in combination, the steps of successively applying to one surface of an open mesh fabric a film of an organic thermoplastic material carried on a temporary support, subjecting the film to heat and uniform pressure for a substantial interval of time to adhere the film to the fabric, stripping the film from the support, and applying a second layer of open mesh fabric to the exposed surface of the film by heat and pressure.

Recent developments in smallwares machines. A. Thompson & S. Bick. *Brit. Rayon & Silk J. 26*, 46-8 (Nov. 1949).

Recent developments in this field include: 1) The Matterson large quill loom, which increases loom efficiency by the use of a quill that will run 4 to 8 hrs. before needing replacement. These quills hold up to a quarter of a pound of yarn; 2) The Hacoba Quill Winder, fully automatic, and built for various types of quills, braiding bobbins, and other yarn packages sets a new standard in winders. The operator has only to replace the supply packages, deal with broken ends, and keep the magazine supplied with empty bobbins; 3) The Muschamp Taylor Automatic Winding Machines which consist of a series of machines for winding quills for narrow weaving, bobbins for braiding, and sewing thread packages. These machines feature positive removal of the full quill, provision for multiple end winding, and an adjustable magazine for empty quills which also is made in such a manner as to facilitate the change-over.

Resilient fibrous material. A. Talalay. Australian P. 134 859, Dec. 31, 1946.

A reticulated open-mesh structure comprising a mass of fibrous material coated and bonded with rubber or like substance, is produced by a process which comprises applying a setting material having the resilient deformability of soft rubber when set, to unwoven fibers having substantially the fiber size and kink characteristics of wool, and plying up and adhering to one another, a multiplicity of laminations of the so treated webs so that the resulting structure when set is open-mesh in form in all 3 dimensions.

Shuttle. W. Matterson. Australian P. 134 502, Oct. 20, 1949.

A shuttle for a narrow-ware loom comprises a wedge-shaped body of a size to occupy the major portion of the space at the back of the warp shed, between the front and the back of a batten. The body is adapted for engagement between converging surfaces of guiding bars and is hollowed out at a location between the guiding bars for accommodation of a quill.

Shuttle control mechanism for narrow ware looms. Arnold W. Gage, Chas. M. Gage & Edwin G. Gage. USP 2 490 589, Dec. 6, 1949.

A shuttle control mechanism for narrow ware looms comprises in combination, a series of warp sheds, a batten structure carrying banks of shuttles in superposed relation, the batten structure being movable, as a unit, to position any one of the shuttle banks at the elevation of the warp sheds, a control mechanism at one side of the loom comprising a vertically movable slide connected to the batten structure so that the weight of same tends to move the slide upwardly, accompanied by downward movement of the batten, a latch for holding down the slide and a solenoid for operating the latch to permit upward movement of the slide upon energization of the solenoid.

Textile and process of making same. Carl A. Castellan (to Am. Viscose Corp.). Can. P. 449 624, July 6, 1948.

The process for pre-shrinking a woven fabric comprising 2 types of activatable yarns comprising a mixture of potentially adhesive filaments with non-adhesive filaments, the warp containing yarns of one type and the filling containing yarns of the other type, comprises shrinking the fabric in the direction of one of its yarn systems, rendering the potentially adhesive filaments in both yarn systems tacky to effect adhesion between the filaments, rendering the filaments non-tacky, shrinking the fabric in the direction of its other yarn system, rendering the potentially adhesive filaments in only the latter yarn system tacky, and thereafter rendering the tacky filaments non-tacky.

Uniting sheet material. Frederick G. Dodge (to Camille Dreyfus). Can. P. 449 720, July 6, 1948.

A method of uniting sheets or webs, which comprises superimposing sheets at least one of which contains a thermoplastic compound, upon each other, and passing a heated element over the sur-

face of at least one of the sheets so as to cause the formation of a plurality of substantially parallel rows of spaced fused spots on at least one surface of the sheets.

Woven fabric with locked selvedge. Carl F. Libby. USP 2 492 051, Dec. 20, 1949.

A woven fabric having a warp, a weft thread extending across the warp in successive loops, the ends of the loops being successively knitted to form a selvedge, and an extensible elastic selvedge thread knitted with each loop end of weft thread in the selvedge, whereby each knitted loop in the selvedge is composed of at least 2 threads.

Fabric applications C 6

Cleanable outerwear. A. J. Crockatt. *J. Textile Inst. (Proc.) 40*, P1000-07 (Oct. 1949).

The difficulties encountered by drycleaners in servicing many garments, which have been manufactured without any thought to a fact that they will require dry-cleaning during their life, are discussed. The use of rubber adhesives used in belts or for applying appliques to dresses is a typical example. During cleaning in solvent the adhesive deteriorates and ruins the item on which it is used. Also cited are difficulties with imitation fur (pile adhered to base fabric with rubber), decorative sequins, unsuitable buttons, fugitive colors, and unsuitable fabrics, particularly woolens which are subject to relaxation shrinkage.

Pyrocloth—a radiant surface area type heating element. Robt. C. Johnson & C. Westerburg, Wes-Jon Laboratories, Minneapolis, Minn. PB 98 747, 1947. *Bibl. of Technical Reports 12*, 206 (Dec. 16, 1949). 16 p. tables, graphs. Microfilm $1.75; Photostat $2.50.

Pyrocloth is a newly developed non-metallic heating element of extremely favorable physical and chemical properties, notably good flexibility, resistance to high temperatures and humidities, immunity toward fungi and insects, inertia to most acids and alkalies and good sound absorption. These properties are due to the qualities inherent in the raw materials used in its manufacture: a fiberglass backing coated with a conductive plastic and electrically insulated with High Temperature Silicone Resin. Report WJG-1.

STANDARD FINISHING D

Application of automatic temperature and humidity control in textile drying. Leo Walter. *Textile Mfr. 75*, 534-7 (Nov. 1949).

Describes control mechanisms for unit heaters, air heater batteries, and controlled air conditioning for warm air drying. It is concluded that the latter method is the ideal means of controlling temperature and humidity of air for drying purposes.

Automatic folding machine. D. & J. Tullis Ltd. & R. Wilson. Brit. P. 587 593. *Textile Mfr. 74*, 95 (Feb. 1948).

Describes a machine for folding sheets which may, for example, be fed to the folding machine from an ironing or a finishing machine. The machine comprises an endless circulating apron trained around guide rollers and extending from the feed end to the delivery end.

Bleaching of cotton—a proposed continuous hypochlorite bleaching process. L. P. Seyb & J. L. Foster. *Am. Dyestuff Reptr. 39*, 20-6 (Jan. 19, 1950).

This is an account of investigations undertaken to develop a rapid, continuous cotton bleaching process utilizing essentially caustic soda and sodium hypochlorite. The procedure developed involved: 1) treatment of gray goods with a sodium hypochlorite solution of controlled pH, concentration and time; 2) impregnation of the treated gray goods with caustic soda, followed by steaming; and 3) treatment of steamed goods with sodium hypochlorite solution of controlled pH, concentration and time. It is believed that with the proper equipment no more than 2 hours total processing time would be required.

Clip for tentering machines and the like. Julien Dungler. USP 2 489 275, Nov. 29, 1949.

This invention provides an improved type of automatic clip through which the action of hot air is adapted to be exerted as directly on the selvedges as on the remainder of the fabric.

Clip removing apparatus. Abe Goodman, Jr. (to Am. Finishing Co.). USP 2 492 741, Dec. 27, 1949.

In a clip removing device for use with textile finishing machines the combination comprised of a bracket adapted for attachment to a finishing machine adjacent the edge of the textile material passing therethrough, a head supported upon the bracket in general alignment with the plane of the cloth passing through the machine, the head including a pair of friction shoes adapted to be arranged in contact with the 2 faces of the cloth adjacent the edge thereof and overlapping the edge, means supporting the friction shoes from the bracket in pivotal relationship so that one of

the shoes can be moved toward or away from the other, and resilient means for urging the shoes toward each other.

Cloth steamer. Geo. W. O'Keeffe (to Proctor & Schwartz, Inc.). Re 23 177, Nov. 29, 1949.

In an open width steamer for use in continuous bleaching processes, the wash bowls are arranged in the bottom of the steaming chamber, which permits the temperature of the washing solution to be raised above the boiling point thereof to effect a better washing of the cloth. The steam produced by this arrangement is employed in the steaming chamber. Another feature of the invention is the provision of an effective water seal where the cloth emerges from the steaming chamber.

Crease marks that spoil some rayon fabrics. Anon. *Brit. Rayon & Silk J. 26,* 53-4, 59 (Dec. 1949).

The facts found in a search for the explanation of the formation of permanent creases in rayon crepes are given. Creasing and weighting the the crease while wet will not produce a permanent crease. Fabrics that are unstable and shrink markedly are the ones that crease. Crepe fabric has highly twisted yarns that try to untwist when wet. This results in kinks and loops in an effort to reach a stabilized condition. This results in the cockled surface. If crepe is treated, while creased, in a hot liquor, the threads stabilize around the crease and the creaes becomes part of the stable condition. Unstable yarns, such as nylon, which will shrink under steam pressure, also result in permanently creased finishes if processed while creased. Pre-boarding is carried out at a temperature in excess of that of dyeing, thus stabilizing the fabric before it is dyed.

Drying apparatus for tenters. H. Charlesworth. Brit. P. 587 966. *Textile Mfr. 74,* 96 (Feb. 1948).

Describes apparatus for tentering fabrics, in which, before the fabric begins to be influenced by the stretching and simultaneous drying action which constitutes the tentering process, it is traversed in zig-zag fashion about a series of rollers adjacent to a bank or series of infrared lamps. The rollers may be composed of metal.

Drying technology. Unit operations review: drying. Saml. J. Friedman. *Ind. Eng. Chemistry 42,* 38-44 (Jan. 1950).

This review article covers the entire field of recent development in drying. A bibliography containing 237 entries includes at least 31 on fibers and textile materials; for each the coverage is indicated briefly.

Dyeing and finishing circular knit goods. Alan C. Lorin. *Textile Age 13,* 88-90, 95-6 (Dec. 1949).

Techniques used in bleaching, dyeing, extracting, drying, calendering, and resin treatment of circular knit goods are discussed. Cost factors and the effect of the Redman process on the processing of knit goods are also described.

Knit-nylon fabrics being set continuously. A. J. Nisbet. *Textile World 99,* 140-41 (Nov. 1949).

Nylon yarn has a relatively high residual shrinkage. Triangle Finishing Co. has developed a process that produces uniform control of width and shrinkage. This process makes use of a pin tenter with automatic tension control, overfeed, and uncurling devices, high-temperature, high velocity air for the setting medium, and temperatures just under the melting point of nylon. Fabric dimensions and physical characteristics can be accurately controlled as to uniformity of width, length, and color.

Method and device for impregnating textile materials with liquid. The Dayton Rubber Co. Indian P. 38 986 (through *J. Sci. Ind. Research (India)*).

Consisting of a pair of cooperating rollers one of which immerges into a sizing bath and the other is provided on the outside with sponge-like structure.

Method of treating textile material. Jos. F. Gifford (to United Merchants & Mfrs.). Can. P. 450 335, Aug. 3, 1948.

The method of treating rolled-edge knitted fabric which comprises applying a setting composition to the edge portions of the fabric, and drying the setting composition.

Opening fabrics in rope form. D. Foxwell. Brit. P. 587 291. *Textile Mfr. 74,* 95 (Feb. 1948).

Describes a method of opening out fabrics, which have been charged in rope form in a hydro-extractor, which consists of disconnecting the hydro-extractor drive, engaging with the rim of the hydro-extractor cage a slower and 2-directional drive, and drawing the rope through a control which according to the direction of twist in the rope, controls the direction of the cage drive for untwisting of the rope.

Photoelectric weft straightener. Geo B. Dunn (to Gen. Electric Co.). USP 2 492 737, Dec. 27, 1949.

In a weft straightener for a length of material having warp threads and weft threads, means for projecting on the fabric 2 beams of light directed toward opposite edges of the fabric, each of the beams making an acute angle with its own perpendicular projection on the plane of the fabric and each of the projections making an acute angle with a line in the plane of the fabric perpendicular to the warp, photoelectric means responsive to the difference in the amounts of the beams transmitted through the fabric, and means controlled by the photoelectric means for moving the weft threads with respect to the warp threads.

Steaming or ageing machine. C. M. M. Jellinek. Brit. P. 588 406. *Textile Mfr. 74,* 84 (Feb. 1948).

Describes a steaming or ageing machine which consists of a main chamber in which the actual steaming takes place and a preliminary chamber which prevents the escape of steam and assists in maintaining air free conditions in the main chamber.

DYEING AND PRINTING E

Automatic tensionless dye-jig. Technical Representative. *Brit. Rayon & Silk J. 26,* 60-1 (Nov. 1949).

The Farmer Norton is a fully automatic, tensionless dyeing jig. Cloth is processed at zero tension and uniform speed and any number up of 24 reversals can be accomplished automatically. The 2 cloth rollers are each run by a 1 h.p. DC motor. These motors are so connected that their speeds are complimentary; when one speeds up the other slows down and vice-versa. The reversing motion operates directly from each cloth roller. The dye vessel itself is all-welded of stainless steel.

Berkshire hosiery-dyeing methods heard by AATCC. Harold L. DeTurck. *Textile World 99,* 114-15, 208, 210, 212, 214, 216, 218, 220, 222 (Dec. 1949).

Berkshire uses the single-bath method for dyeing multifilament hosiery; 15 denier monofilament hosiery is packed in sleeves, and this method seems to reduce pullers and facilitate loading the dye machine. Scouring is done with soap and emulsifying agent with the addition of caustic soda, soda ash, trisodium phosphate, or tetrasodium pyrophosphate. The effects of various acetate dye baths on leveling were studied. Many experiments were carried on, in conjunction with DuPont, substituting alkalies for acetic acid in the tannic-acid method. Studies to prevent migration were

also made. The Nydyes and their effect on 15 denier monofilaments are discussed. Direct dye tests were also made and several colors of chrome dyes were experimented with; the procedures used are discussed. Problems on 20 denier monofilament were found not to be the same as for 15 denier. Dyeing assistants such as solvents, dispersing agents, and wetting agents were tried. Some of those tried are listed. Strong alkaline baths were used in an attempt to obtain a union. Combinations that give promise are listed. Finishes developed and recommended are discussed.

Coloration. Henry C. Olpin & Sydney A. Gibson (to Claude G. Bonard). Can. P. 450 404, Aug. 10, 1948.

Process for improving the fastness to the combustion products of coal gas of dyeings on textile materials, having a basis of cellulose acetate dyed with 1-amino-4 methylamino-anthraquinone, which comprises impregnating the textile materials with a condensation product of formaldehyde with melamine in an amount of from 0.5 to 2% of the weight of the dry materials.

Dye transfer in the steaming process. H. A. Turner. *Textile Mfr. 75,* 540-1 (Nov. 1949).

Discusses experiments made to determine the amount of dye transferred and the rate of transfer in the dye printing process. Two theoretical approaches to the question of exhaustion of dyestuffs are cited: 1) the electrolytic approach based on an ion exchange principle, and 2) one which is concerned with the idea of a potential barrier in which the cellulose in water acquires a negative charge and repells the dye anions. This barrier can be lowered by making the starch-water system more negative by the addition of an electrolyte.

Dyeing of "Orlon" acrylic fiber and its use in colored textiles. Robt. J. Thomas & Paul L. Meunier. *Am. Dyestuff Reptr. 38,* 925-32, (Dec. 12, 1949).

Orlon continuous filament yarn may be dyed in pastel shades at the boil with dispersed acetate colors; to produce heavy shades with acetate dyes temperatures above 212°F or the use of aromatic dyebath assistants are required. Indigoid and thioindigoid vat dyes yield medium strength, fairly light fast dyeings at the boil from dyebaths with a high concentration of potassium carbonate; complete penetration of individual filaments is attained only at temperatures substantially above 212°F. Crockfastness is usually not good except in light shades. Resin-bonded pigments

are likely to be used to a considerable extent in coloring fabrics made of Orlon. Prints of basic and acetate dyes are fixed by aging for 30 min. at 15 to 25 psi, or, if resorcinol is incorporated in the paste, at atmospheric pressure. Selected vat dye prints require only a 10 min. rapid aging but are deficient in fastness to crocking. Because of Orlon's resistance to staining by many classes of dyes, it is an ideal yarn for use as a decorative effect thread in piece-dyed fabrics.

Dyeing of trylene. A. G. H. Michie. *Fibres 10,* 455-57 (Dec. 1949). **Terylene; its properties and processing.** Anon. *Brit. Rayon & Silk J. 26,* 45 (Dec. 1949).

This is a report of an address in which the dyeing of terylene is discussed. The physical properties of terylene are compared with those of nylon and acetate rayon. The difficulties encountered in dyeing this fiber are noted. Although terylene absorbs more dye than nylon it is more difficult to dye because of the extremely low rate of dye diffusion. As a result of a large number of experiments pointed toward dye diffusion rate, 2 fairly satisfactory methods of dyeing were derived. One is a direct dyeing with selected dispersed dyes such as Dispersol Fast Orange G and Duranol Blue G. N. at as high a temperature as possible and with complete immersion. The other method of dyeing is the modified azoic process.

Dyeing of Vicara-wool unions. Anon. *Tech. Bull. (DuPont) 5,* 192-99 (Dec. 1949).

The dye receptivity of a blend of 50% Vicara staple fiber and 50% scoured wool rawstock was investigated. Each of the tested wool colors dyed both Vicara and wool, but a good union was not always obtained. For successful coloration, a careful selection of dyes is necessary. The relative strength of wool dyes on the Vicara component of Vicara-wool combinations is described in appended tables. The union produced by each dye has also been graded. It is stressed that good blending of the fibers will always improve the solidness of dyeing and that colors described as giving only a fair union may be quite satisfactory in many cases.

Dyeing with indigo dyes. R. F. Crompton. *Textile Mfr. 75,* 541 (Nov. 1949).

This is a summary, based on an address given at the College of Technology, Manchester, England, of the many processes and styles of indigo dyeing used in various countries throughout the world. Among the methods described are the now obsolete "fermentation" method, the "Tagliani" process used in Italy, the "stitch and tie" style of Nigeria and the Portuguese "Costabadie process" in which alpha-naphthylamine claret with a paste resist is used on the first nip and copper nitrate on the second nip.

Dyeing with naphthol colors. B. R. Celentano. *Can. Textile J. 66,* 45-7 (Nov. 25, 1949).

Discusses rules which must be followed when dyeing yarns in packages and on beams and piece goods by jig and padding methods in order to assure consistency of shade and desired fastness properties.

Effect of Anti-Fume DE Paste on the shade and fastness properties of dyed acetate rayon. Anon. *Tech. Bull. (DuPont) 5,* 161-65 (Sept. 1949).

New data are presented on the shade, light and gas fume fastness of acetate rayon, dyed and treated with Anti-Fume DE Paste. Of the direct acetate dyes, the violets, blues and grays were generally the most sensitive to fume fading. The use of Anti-Fume DE Paste provides protection against this tendency while exerting only a negligible effect on shade. It does, however, reduce the light fastness of some of the dyes. A chart describing the effect of Anti-Fume DE on the shade, light (Fade-Ometer) and gas fume fastness of the dyes in question is given.

Effect of heat-setting on dyed nylon. Anon. *Tech. Bull. (DuPont) 5,* 167-89 (Dec. 1949).

The stability to heat-setting of DuPont acid, direct, Chromacyl and chrome dyes, as well as acetate and developed acetate dyes, has been tested on nylon fabric. Emphasis is placed on the fact that the dyed samples were subjected to a highly exaggerated heat treatment, the period of exposure being from 15 to 20 times as long as the mill procedure. Results of these prolonged experimental conditions indicate that most of the tested dyes can be recommended for industrial application where dry heat is used. Data for results obtained with dyes tested are given in a table.

Effects of polyethylene oxide condensate and some polyethylene glycols on the absorption spectra of certain azo dyes. J. T. Martin & H. A. Standing. *J. Textile Inst. (Trans.) 40,* T689-701 (Oct. 1949).

The effects of a polyethylene oxide condensate and polyethylene glycol on the absorption spectra of such azo dyes as Benzopurpurine 4B, meta-Benzopurpurine 4B, Direct Fast Orange SE, Chrysophenine G, and Naphthalene Orange 2G are dis-

cussed. It was found that less than a 0.5% solution of Dispersol A (polyethylene oxide condensate) in an aqueous 10 mg./l Benzopurpurine 4B solution has a considerable effect upon the absorption spectrum of the dye. However, when the Dispersol A concentration is between 0.5-10% the spectral effect is independent of concentration. One per cent Dispersol A on the other hand has a considerable effect on the other azo dyes cited. Similar results to those with Dispersol A are obtained with 1% polyethylene glycol in an aqueous solution of Benzopurpurine 4B, except that the effects are greater. An increase to 5% polyethylene glycol further enhances their effect on the absorption characteristics of the dye.

Effects of sodium chloride, pyridine and ethyl alcohol on the absorption spectra of certain azo dyes in aqueous solution. J. T. Martin & H. A. Standing. *J. Textile Inst. (Trans.) 40,* T671-88 (Oct. 1949).

A study was made to determine the effect of direct dye solutions containing sodium chlorine, pyridine, and ethyl alcohol on the absorption spectra of certain azo dyes which included, Benzopurpurine 4B, Direct Fast Orange SE, Chrysophenine G, meta-Benzopurprine 4B, and the mono-azo wool dye Naphthalene Orange 2G. It was found that sodium chloride has a considerable effect upon the absorption spectra of solutions of Benzopurprine 4B, meta-Benzopurpurine 4B, Direct Fast Orange SE, but has no effect on solutions of Chrysophenine G and Naphthalene Orange 2G. It was also found that a 10% solution of pyridine affects the absorption spectra of these dyes only very slightly. As regards ethyl alcohol, the absorption spectra of each dye in the alcohol is independent of the sodium chloride concentration when the concentration is 50%, but not when it is 10%. The spectrum of each dye in aqueous salt free alcohol depends on the percentage of the alcohol in solution; the effect of 10% alcohol is small however as compared with the effect of 10% pyridine.

Fast colorings obtainable with naphthol and vat dyestuffs. R. H. Nuttall. *Am. Dyestuff Reptr. 38,* 923-24 (Dec. 12, 1949).

Dyeing procedures are given for naphthol dyeing on hosiery, naphthol package and beam dyeing, naphthol dyeing on piece goods, and vat dyeing on piece goods, hosiery, packages and beams.

Gum tragacanth in textile printing. Technical Correspondent. *Brit. Rayon & Silk J. 26,* 51-2, 67 (Dec. 1949).

The origin and preparation of gum tragacanth are explained. As a thickening agent for printing vat dyestuffs the mixture is 3 parts wheat starch at 1 lb. per gallon and 1 part gum at 8 ozs. per gallon with additions of alkali, reducing agent and hygroscopic agents. The use of this gum is imperative for good penetration. Extra quantities sometimes improve leveling. It is useful in printing nylon with fine designs. Faulty engravings are also discussed as to causes of printing faults and the use of tragacanth in the print paste as a means of compensating for faulty engravings is described.

Influence of electrolytes on viscose rayon dyeing. "Mellor". *Brit. Rayon & Silk J. 26,* 46-7 (Dec. 1949).

Purified direct dyes would have no affinity for viscose rayon. The addition of electrolytes corrects this. The greater the particle size of the dye, the greater the equilibrium exhaustion. A table illustrates the sensitivity of various direct dyes to sodium chloride. Dyes for a mixing must be selected with the same rate of dyeing and same equilibrium exhaustion. Then the proper salting agent must be selected, and should be added gradually, either continuously or intermittently. The ideal degree of exhaustion seems to be about 70%, which is economical and practical. The many variables make it impossible for the dyer to use his dyes and electrolytes with 100% efficiency.

Intaglio printing superior for vinyl film. D. C. McGiehan. *Textile World 99,* 147, 200, 203 (Dec. 1949).

Most vinyl film is printed on the same type of single-cylinder roto-intaglio machine that is used for textiles. Rotogravure-type machines are less suitable. Screen printing is used in special cases. The transfer method of printing is also valuable because the transfer medium is firmer than the film. Central impression cylinders are usually of cost iron. Paper back grays keep the color off the blanket. Dry cans are not generally used.

Merits of the metallized dyestuffs. H. Luttringhaus. *Can. Textile J. 66,* 47-50, 58 (Nov. 25, 1949).

Metallized dyestuffs are unique in that more dyestuff is transferred to the wool with higher amounts of acid. Two linkages are thought to form, a salt linkage between the free dye-acid and the wool and a co-ordinate linkage between dyestuff complex and basic groups of the wool. Hydrolysis of the salt linkage decreases with increasing hydrogen-ion concentration, thus in-

creasing the fixation of the dyestuff. The complex linkage tends to diminish with increased hydrogen-ion concentration so that the final degree of affinity of chromiferous dyes is lowered by the addition of more acid.

Methods of introducing color into textiles. R. L. Elliot. *J. Textile Inst. (Proc.) 40,* P992-99 Oct. 1949).

A brief history of the art of dyeing is given and some of the common ways of dyeing with vats are discussed. A brief history of printing is also given and modern methods of printing are reviewed. The dyeing of fiber blends and glass are noted briefly.

New laboratory dyeing machine. Anon. *Textile Mfr. 75,* 543 (Nov. 1949).

Describes a laboratory dyeing machine developed in the laboratories of I.C.I. Ltd. in which the samples are carried by hooks suspended on stainless steel rods which receive a continuous vertical reciprocating motion by contact with a camshaft in the base of the machine. The dye vessels are separate and are in the form of large test tubes with conical mouths. When not in use the dye vessels may be removed and the vacant holes in the top covered with stainless steel lids.

Photographic printing on cloth, wood, metal, glass etc. U. S. Office of Technical Services. PB 98 781, Nov. 1949. *Bibl. of Technical Reports 12,* 232 (Jan. 16, 1949). 3 p. (Available from U. S. Department of Commerce. Office of Technical Services $.15).

Report on dye transfer research. Anon. *Brit. Rayon & Silk J. 26,* 54 (Nov. 1949).

The results of research on dye transfer in the steaming process carried out by a team headed by H. A. Turner were reported to the Society of Dyers and Colourists. The method used to determine the amount of dye transferred and hence the rate of transfer is explained. It was found that exhausting the dye was not a simple function of the amount of dyestuff originally present. The approaches to the problems of dye transfer and exhaustion are enumerated.

Reveals photo-chemical dyeing by radio-active energy. Anon. *Am. Wool Cotton Reptr. 63,* 69, 81 (Dec. 15, 1949).

The Vat-Craft process is a new process for vat-dyeing apparel fabrics with a uranium acetate compound used in conjunction with a uranium sensitizing agent. The fibers are coated or impregnated with soluble materials which are converted to insoluble colored pigments upon exposure to radiation. These become an integral part of the fabric and penetrate completely through the fiber. Details of the process are discussed.

Spectrophotometry. Anon. *Tech. Bull. (DuPont) 5,* 121-56 (Sept. 1949).

This article describes in simple terms the underlying principles of spectrophotometry and how it is used in determining the strength and brightness of a dye.

Study of fluorescent dyes and their applications. W. L. Lawson. For Signal Property Officer SCEL. Final Report. PB 98 490, June 1948. *Bibl. of Technical Reports 12,* 203 (Dec. 16, 1949). 99 p. photos, fold. graphs, tables. Microfilm $4.25; Photostat $12.50.

Bound with this report are Henry E. Millson, Phenomenon of fluorescences, Calco Technical Bull. No. 571. Henry E. Millson, Phosphorescence of textile fibers and other substances, Calco Technical Bull, No. 753. Henry E. Millson and Clifton C. Candee, Fluorescent dyes in coatings and plastics, Calco Technical Bull. No. 755. Work done under contract with Whitehouse Products, Inc., Brooklyn, N. Y.

Successful application of atomic energy in dyeing. Anon. *Rayon & Syn. Tex. 31,* 79-80 (Jan. 1950).

This is a description of the new Vat-Craft dyeing process which utilizes radioactive materials.

Temperature factor in viscose rayon dyeing. "Mellor". *Brit. Rayon & Silk J. 26,* 66-7 (Nov 1949).

Higher temperatures make for quicker diffusion of the dyestuff or quicker rate of dyeing and the reaching of equilibrium. This is illustrated by a curve. Desorption is also faster at high temperatures. When using class C direct dyes, material should be entered slightly above room temperature and the temperature gradually raised. The same applies to vat dyes on viscose yarns. The weak alkali type of vat dyes are used at temperatures from 75° to 85°C. With azoic dyes, the naphthol is padded cold on viscose yarn. Recently, some research has been done with dyeing at temperatures above the boiling point of water, and seems to show possibilities in some fields. Dye fixation by steaming can cause even penetration throughout the fiber in a few seconds. Temperature can also be used effectively in dyeing mixed fibers to leave one undyed or to dye both fibers.

Transfer properties of vat dyes. Anon. *Tech. Bull. (DuPont) 5,* 200-10 (Dec. 1949).

Dyeings were made on unbleached, unmercerized scoured cotton yarn. Selected colors were also applied to bright filament viscose-process rayon. The tables shown demonstrate that the vat dyes have much better transfer properties on cotton than on rayon and on both fibers the degree of transference is greater at the higher temperature.

Vat-Craft dyeing process revealed. *Am. Dyestuff Reptr. 38,* 960-61 (Dec. 26, 1949).

This is a brief account of a new dyeing process and its development by the Vat-Craft Corp. In the new process, fibers are coated or impregnated with soluble materials, which upon exposure to radiation, are converted into insoluble colored pigments. These are said to become an integral part of the fabric and penetrate completely through the fiber. The apparatus used and the dyeing procedure are described briefly.

Vat dyeing process uses atomic energy. Anon. *Can. Textile J. 66,* 45-6 (Dec. 23, 1949).

This is a short description of the Vat-Craft dyeing process.

"Vibration" method of dyeing. Am. Viscose Corp. Brit. P. 587 214. *Textile Mfr. 74,* 47 (Jan. 1948).

Describes a method of dyeing normally water-impermeable textiles in dye baths in the absence of swelling agents, comprises subjecting the bath and materials to vibrations of a frequency of the order 1,000-500,000 cycles per second. The vibrations are applied indirectly to the material through the action of the bath.

Wool dyeing. E. I. Noble. Brit. P. 588 454. *Textile Mfr. 74,* 84 (Feb. 1948).

Describes a process in which materials containing wool are dyed with acid, chrome or metallized dyestuffs with the addition of orthophosphoric acid. The dyeing is carried out in the presence of othophosphoric acid or of a soluble acid salt.

Calico printing: Blanket washing. Dewey & Almy Chem. Co. Brit. P. 587 081. *Textile Mfr. 74,* 46 (Jan. 1948).

In calico printing where a color-absorbing blanket has its outer surface washed to remove color from it, a method of preventing the passage of water behind the edges of the blanket consists in directing an air current outwardly from behind the blanket.

Construction of printing blanket. Dewey and Almy Chem. Co. Brit. P. 587 144. *Textile Mfr. 74,* 47 (Jan. 1948).

A process of textile printing in which the fabric is separated from the impression cylinder by an impervious blanket, the outer surface of which has near the selvedges of the fabric small continuous grooves running in the direction of travel of the blanket so that edge flushing is prevented. The grooves may extend over the working surface of the blanket and in a preferred form are very small parallel grooves running longitudinally in the outer surface of the blanket.

Economy in the print works. Anon. *Brit. Rayon & Silk J. 26,* 52-4 (Nov. 1949).

Economies can be effected by choosing the proper dyestuff for the job and the fabric. Not only the cost of the dyestuff but the cost of application and aftertreating must be considered. Economies in the use of dyestuff can result from correct estimation of the amount needed, mixing under proper conditions, and use of leftovers. In roller printing, color boxes should be washed out, kept properly supplied, frothing kept down to eliminate waste and reduce bad printing, and the size and section of the color boxes carefully picked so that if color is removed from time to time through spoilage, the waste will be kept low. In screen printing, careful checking before making up or ordering dyestuff will effect economies.

Printing cellulosic acetate. The United Turkey Red Co. Ltd. & G. D. Sutton. Brit. P. 588 106. *Textile Mfr. 74,* 97 (Feb. 1948).

Describes a process of coloring fabrics containing cellulose acetate, in which the fabric is contacted with a composition containing a dyestuff (including a material capable of being converted into a dyestuff by suitable treatment) having little or no affinity for cellulose acetate, and a thiocyanate, and is then steamed.

Printing of textile materials. J. Courtney. Australian P. 135 057, July 24, 1947.

To obtain a desired deep and equal penetration of color in printing textile materials and to overcome the imperfections of the stencil screen squegee methods which have a tendency to cause pin points of color in half-tones and an uneven print, a stencil screen is placed over the textile or portion thereof to be printed, a sheet or layer of felt or like absorbing material is placed over the stencil screen and is impregnated or sprayed with the ink or color to be applied and pressure is applied by passing one or more rollers over the surface of the impregnated felt.

Problems in aging textile prints and their control. Paul J. Choquette & Otto F. Habel. *Am. Dyestuff Reptr. 38*, 919-22 (Dec. 12, 1949).

This is a discussion of some of the principles which help to explain vat color printing, and a survey of the progress of vat-aging technique in the U. S. Quantitative data obtained by F. Fahnoe (see TTD: *6*, 867) on a pilot ager equipped with instrument control is given, together with its significance in minimizing plant troubles through improved controls.

Short aging process for the printing of synthetics, silk and wool. Anon. *Tech. Bull. (DuPont) 5*, 112-20 (Sept. 1949).

The printing of synthetic fibers, silk and wool has always presented a problem of correlating 3 important factors—optimum color fastness and value, and economy of operation. The influencing factors is the aging time. With acetate, acid and direct color prints, cottage steaming for 1 hr. is required for best value and fastness. Shorter times in cottage or other types of steamers have been employed but a corresponding reduction occurs in dye fixation and yield. This article discusses the results of work done in the laboratory and the new developments in short aging processes which offer the fastness and color value of older cottage steaming methods produced more economically in a rapid ager or tower ager.

SPECIAL FINISHING F

Anti-shrink treatment. Cluett, Peabody & Co., Inc. Brit. P. 586 598. *Textile Mfr. 74*, 45 (Jan. 1948).

A process for stabilizing regenerated cellulose material against shrinkage under repeated laundry washings. The material is treated with a solution containing the equivalent of 15-120 cc of 30% by wt. of glyoxal solution, and 0.125-4 gr. of an acidic catalyst per litre of treating solution, and sufficient polyvinyl alcohol to produce the desired stiffness and finish of the material. It is then baked at a temperature and the time having an inverse ratio in the proportion of between 212°F and 350°F and between 40 min. and 2 min. so as to effect reaction between the glyoxal and the fibers.

Bug barrier. Anon. *Chem. Industries 65*, 341-42 (Sept. 1949).

Investigations by the USDA in developing an insect-repellent treatment for cotton bags have shown a 1:10 pyrethrin: piperonyl butoxide water dispersion to be an effective repellent when ap-

plied to fabric during the padding operation and when applied to warp yarn during the sizing operation. Further investigations will be made of the toxicity and cost of the process before its commercialization.

Creasing and creaseproofing of textiles. D. D. Gagliardi & I. J. Gruntfest. *Rohm & Haas Reptr. 7*, 22-4 (Oct. 1949).

This is a brief adaptation of a paper presented before the Cellulose Section of the American Chemical Society's Symposium on Textiles at Atlantic City, Sept. 20, 1949.

Damping and shrinking on a precision-built machine. D. R. H. Williams. *Textile Mfr. 75*, 531-3 (Nov. 1949).

Describes a cloth sponging machine in which the fabric is passed between a pair of squeeze rolls, the lower roller of which picks up moisture from a trough. A supplementary roller impinges on the bottom roller to equalize the moisture supply. This system supplies a uniform percentage of water to fabrics ranging in weight from 15 to 18½ ozs. and is said to shrink cloth as satisfactorily as the London method.

Electronics operate Butterworth range. Anon. *Am. Wool Cotton Reptr. 64*, 14 (Jan. 5, 1950).

The Ripple-Flo tenter range has an electronic overfeed device actuated by a photoelectric beam. Features of the new range are discussed.

Finishing agents. Am. Cyanamid Co. Brit. P. 586 429. *Textile Mfr. 74*, 45 (Jan. 1948).

Describes a textile finishing composition comprising a guanamine or a formaldehyde condensation product, and an acid-curing thermosetting aminoplast resin. The composition can produce fabrics having improved water resistance and handle.

Fire foe. Anon. *Chem. Industries 65*, 497 (Oct. 1949).

This is a brief account of the development of Erifon, a new flame retardant developed by DuPont, its application and properties.

Impregnating web. Wm. E. Holland, Alexander J. Stanley & Jas. A. Chesnut (to Johnson & Johnson Ltd.). Can. P. 449 362, June 22, 1948.

The method of internally bonding a fibrous web which comprises applying a bonding liquid to one face of the web and progressively and positively pressing the liquid through the web to the opposite face while maintaining the opposite face unobstructed and free of bonding liquid to permit air confined in the web to be expelled through the

opposite face, and subsequently dipping the web to apply bonding liquid to both faces of the web after the air has been expelled.

Investigations of anticrease treatment for cotton. R. F. Nickerson. *Am. Dyestuff Reptr. 39,* 46-50, 62 (Jan. 23, 1950).

Experiments are described which were undertaken for the purpose of more precisely defining the practical and theoretical problems involved in applying wrinkle resistant finishes to cotton fabrics. The effects of melamine formaldehyde precondensate on a standard cotton fabric (80 x 80 bleached, unmercerized print cloth). A number of application variables were separately varied over wide ranges. It was found that: 1) wrinkle resistance of the cotton fabric varied inversely with breaking strength and tear value over a wide range of solids applied, cure times and temperatures, and post cure washing; 2) melamine-formaldehyde precondensate properly applied caused no apparent acid damage to the goods; 3) deposition of unpolymerized melamine-formaldehyde precondensate has little effect on fabric properties; 4) anticrease effects in cotton are produced in proportion as cellulose is cross-linked through resin bridges; 5) cross-linking requires anhydrous cure conditions; 6) the cellulose-melamine resin bond is extremely resistant to alkali and is not broken by mercerization caustic; 7) variations in application results probably result from variations in cure conditions. An extensive discussion of this paper is also reported.

Luster and cotton. Geo. S. Buck, Jr. & Frank A. McCord. *Textile Research J. 19,* 715-54 (Nov. 1949).

This is the second in a series of studies dealing with various qualities of cotton being prepared by the National Cotton Council of America. The report is divided into 2 parts: Part one consists of a survey of market prospects for luster finishes on cotton fabrics and yarns and includes sections on the size of the market and the influence of quality and price. The second part, devoted to technical aspects of luster, is a comprehensive survey of the literature that includes 219 references.

New white fluorescent substance for textile treatment. Imperial Chemical Industries Ltd. Indian P. 39 617 (through *J. Sci. Ind. Research (India)*).

Reacting cyanuric chloride with diaminostilbene disulfonic acid and diethanolamine.

New white fluorescent substance for textile treatment. Imperial Chemical Industries Ltd. Indian P. 39 618 (through *J. Sci. Ind. Research (India)*).

Reacting cyanuric chloride with diaminostilbene disulfonic acid and monoethanolamine.

New white fluorescent substance for textile treatment. Imperial Chemical Industries Ltd. Indian P. 39 619 (through *J. Sci. Ind. Research (India)*).

Reacting cyanuric chloride, diaminostilbene disulfonic acid, monoethanolamine and an amine.

Materials for imparting water repellency to textile materials and processes for producing and using the same. Mark Pollock & Ernst Zerner (to Sun Chemical Corp.). USP 2 493 360, Jan. 3, 1950.

A material for imparting permanent water repellent characteristics to textile materials which comprises the complex reaction product secured by reacting under substantially anhydrous conditions an aliphatic acid nitrile of the formula $R-C\equiv N$, where R is an aliphatic group containing 12-20 C atoms, with a material which furnishes formaldehyde under the reaction conditions in the presence of a catalytic amount of an acid selected from the group consisting of sulfuric acid and chlorsulfonic acid to secure an intermediate product, and thereafter reacting the intermediate product with phosphorous trichloride.

Nonslip fabrics and method of preparation thereof. Alden D. Nute (to Am. Cyanamid Co.). USP 2 491 454, Dec. 13, 1949.

A method of stabilizing woven net fabrics composed of hard-finish nylon threads which comprises impregnating the fabrics with an aqueous solution of about 3-20% of their weight of a water-soluble alkylated methylol melamine in an uncured condition, and subsequently heating the impregnated fabrics to convert the impregnating agent into a cured resinous binder.

Organdie effects on fabrics, etc. Heberlein & Co. A. G. Brit. P. 588 469. *Textile Mfr. 74,* 84 (Feb. 1948).

A process for imparting a transparent or organdie effect to fibers or fabrics by impregnating the fibers with a solution in an organic solvent or medium of a urea-formaldehyde or amino-triazine-formaldehyde resin wholly or partially etherified with an alkyd resin. Drying and fixing the resin is carried out by heat treatment.

Patterning device. Courtaulds Ltd. & R. A. McFarlane. Brit. P. 586 406. *Textile Mfr. 74,* 45 (Jan. 1948).

Describes a process for obtaining pattern effects of contrasting surface on fabrics, which consists of printing restricted areas with a composition containing a resist that will resist the action of the raising rollers. The fabric is dried and then subjected to a raising process.

Preshrinking increases stability of polyethylene. Anon. *Textile World 99*, 145 (Nov. 1949).

American Viscose Corp. has developed a finishing treatment which preshrinks polyethylene fabrics to less than 2% residual shrinkage. It consists of treating the fabric in a semi-relaxed state with hot water, hot air, or steam. After shrinkage the fabric receives a brief steaming and then is sometimes calendered. The process must be carefully controlled to obtain the desired amount of stability.

Process and apparatus for finishing and shrinking textile fabrics. Frank R. Redman (to Edwin F. James.) Can. P. 450 042, July 20, 1948.

A method of finishing and shrinking textile fabric, comprises moistening the fabric, passing the moist fabric between driven calendering rolls, depositing the fabric on a movable surface directly from the rolls substantially free from tensional stress, moving the surface at a speed less than the peripheral speed of the rolls, whereby the fabric is completely relaxed on the surface after its passage through the rolls, and applying heat to the fabric to dry it while it is in a relaxed condition on the surface.

Process for creaseproofing textiles. Ladislau Balassa (The U. S. Finishing Co.). USP 2 493 381, Jan. 3, 1950.

The process of creaseproofing textile fabrics which comprises applying to a fabric an aqueous solution of a thermosetting polymerizable resin, applying to the fabric containing the resin solution a discontinuous layer of solid water-insoluble finely divided hydrophilic material, intimately mixing the finely divided material with the excess solution on the surface of the fabric, thereafter removing the mixture whereby the fabric is cleared of any free excess resin solution, and insolubilizing the resin in the presence of an acid catalyst.

Rotproofing fabrics, etc. T. French & Sons Ltd., E. Race, F. M. Rowe, J. B. Speakman, B. J. Brown & Eclipse Dye Co. Ltd. Brit. P. 588 294. *Textile Mfr. 74*, 97 (Feb. 1948).

Describes a process of treating cellulosic textile yarns or fabrics to render them resistant to "rotting." The material is first impregnated with solution of iron and copper compounds not containing a water insoluble coagulable hydrophilic colloid. The compounds are subsequently precipitated *in situ* on the fibers by treatment with an alkaline solution so as to provide a mixture of virtually insoluble copper and iron compounds. The affinity of the iron compound for both cellulose and copper assists in fixation of the copper compound.

Shrinkage control. K. H. Barnard. *Am. Wool Cotton Reptr. 63*, 15, 44 (Dec. 22, 1949).

Acid colloids of lanaset resin and melamine resin are cured at ordinary drying temperatures. The combination of one of these resins with a pretreatment in an alkaline peroxide bath is reported to have given shrinkage control with about half the percentage of resin solids and with a better hand minus discoloration or yellowing.

Shrinkproofing wool and materials therefor. John B. Rust (to Montclair Research Corp.). USP 2 491 584, Dec. 20, 1949.

A bath suitable for shrinkproofing wool with substantially normal hand comprises an aqueous substantially stable emulsion containing a synthetic copolymer of 100% polymerization, of butadiene 1.3 and from 5 to 40% by weight of the copolymer of an unsaturated ketone containing not more than 12 C atoms and having the formula $CH_2 = CR_2—CO.R_3$ where R_2 is selected from the group consisting of hydrogen and alkyl groups and R_3 is alkyl, the copolymer being present in amount to give 1 to 25% by weight of copolymer deposition on the wool, a non-cationic emulsifying agent, stable at a pH below 7, and at least, 25% by weight on the copolymer of a water-soluble neutral salt of an alkali metal as conditioning electrolyte, the pH of the bath being below 7.

Stabilizing shrunken fabrics. Sylvania Industrial Corp. Brit. P. 588 270. *Textile Mfr. 74*, 96 (Feb. 1948).

Describes a process of making a fabric, comprising at least 2 sets of yarns, which comprises making at least 2 types of activatable yarns comprising potentially adhesive filaments. The potentially adhesive filaments of at least one type of yarn are activatable to an adhesive state under conditions which do not activate the other types of yarns. When weaving, the activatable yarns of one type comprise the warp yarns, and the activatable yarns of the other type comprise the weft. The fabric is shrunk and stabilized by rendering the potentially adhesive filaments tacky to effect

adhesion between filaments in the fabric.

Synthetic finishes; tools for new markets. S. F. Sylvester. *Cotton Trade J.* (International Ed., 1949-1950), 176-77.

The use of synthetic finishes in finishing cotton fabrics is discussed briefly. In the case of wrinkle-resistant finishes much work remains to be done and it is predicted that further development is going to depend as much on the manufacturer of textiles as on the manufacturer of textile chemicals.

Synthetic resin finishing processes; recent developments in machinery and methods. Anon. *Brit. Rayon & Silk J. 26*, 42-4 (Dec. 1949).

Resins are now used for many purposes in finishing cotton and rayon. For crease resistance, the resin is applied in its monomeric state, followed by drying and baking treatments. Attention is shifting from urea formaldehyde to melamine-formaldehyde resins. A compromise between the amount of crease resistance (amount of resin) and wear resistance must be achieved. Padding mangle bowls should be under a constant pressure to accurately control the amount of resin applied. A hot air pin stenter should be used; next should be a polymerizing chamber with a temperature of from 150-350°F. A light scouring is used to remove excess resin from the surface of the fibers.

Treatment of cotton fabrics. Chas. L. Mantell & Oscar K. Heim (to United Merchants & Mfrs., Inc.). Can. P. 449 551, June 29, 1948.

Process of inhibiting the wash shrinkage of cotton fabric which comprises treating the stretched fabric with an aqueous solution made from about 2 to about 20% by weight of urea, about 2 to about 6% by weight of zinc oxide, and about 6 to about 20% by weight of alkali metal hydroxide, for a time sufficient to reduce the shrinkage, and drying the fabric while framed to its original width, each of the ingredients of the solution being present therein throughout the entire time the fabric is in contact with the solution.

Treatment of cotton fabrics. Chas. L. Mantell & Oscar K. Heim (to United Merchants & Mfrs., Inc.). Can. P. 449 552, June 29, 1948.

Process of inhibiting the wash shrinkage of cotton fabric which comprises treating the fabric with an aqueous solution made from about 10% by weight of urea, about 1 to 3% by weight of stannic oxide, and about 10 to about 22% weight of alkali metal hydroxide for a time ranging from about 10 seconds to about 2 min., framing the

fabric to its original width after the treatment, washing the solution from the fabric and drying the fabric while framed to its original width.

Treatment of interlining material. Ralph M. Fischer (to Am. Cyanamid Co.). Can. P. 449 460, June 29, 1948.

Interlining material for garments comprising cloth pre-treated by impregnation with 2-20% of its weight of curable water-soluble methylated methylol melamine in the form of an aqueous solution and with a heat-curable, water-insoluble mixture containing 0.15% to 17.5%, based on the weight of the cloth of a lacquer-type resin selected from the group consisting of organic solvent-soluble urea-formaldehyde resin and organic solvent-soluble melamine-formaldehyde resin together with sufficient phthalic anhydride-polyhydric alcohol resin to plasticize the lacquer-type resin, followed by heating the cloth to cure the resins.

Treatment of nylon webbing to increase resistance to abrasion. C. A. Willis. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, O. PB 98 813, May 1948. *Bibl. of Technical Reports 12*, 243 (Jan. 16 1949). 38 p. photos, tables. Microfilm $2.25; Photostat $5.00.

To obtain a treatment for nylon parachute webbing which would give increased resistance to abrasion, the comparative abrasive resistance of several types of webbing were investigated after subjecting them to varying conditions and varying degrees of concentration of the treating bath. Treatments investigated were a water dispersion of polyvinyl butyral, and a water dispersion of vinylidine chloride. Other factors which might influence the development of a satisfactory abrasion-resistant nylon webbing were investigated. AAF TSEAM M5287. AAF T-2 TR 5699.

Treatment of rayon fabrics. Chas. L. Mantell & Theodore J. Dabrowski (to United Merchants & Mfrs., Inc.). Can. P. 499 553, June 29, 1948.

Process of inhibiting the wash shrinkage of regenerated cellulose fabric which comprises treating the fabric with an aqueous solution made from about 10% by weight of urea, about 1 to about 4% by weight of zinc oxide, and about 9 to about 13% by weight of alkali metal hydroxide for a time of treatment ranging from about 10 sec. to about 1 min., thereafter stretching the fabric, flushing the solution from the fabric and drying it while in the stretched condition.

Water repellent composition containing stearamide and methylated methylol melamine. Geo. I. Cathers & Linton A. Fluck, Jr. (to Am. Cyanamid Co.). USP 2 491 249, Dec. 13, 1949.

An autodispersible water-repellent composition for textiles consisting of: Stearamide, 11.4-19%; methylated methylol melamine (80% aqueous solution) 50-25%; alkali metal stearate, 0.6-1.2%; sodium isopropyl naphthalene sulfonate, 0.84-0.64%; ammonia, 8%; and water, 29.16-46.2%.

TESTING AND MEASUREMENT G

A.S.T.M. STANDARDS ON SOAPS AND OTHER DETERGENTS. Prepared by A.S.T.M. Committee D-12. Philadelphia, American Society for Testing Materials, Nov. 1949. 132 p. Price: $1.75.

The November 1949 edition of this publication, prepared by A.S.T.M. Committee D-12 on Soaps and Other Detergents, brings together in convenient form for use in industry all of the A.S.T.M. standards pertaining to soaps and other detergents. There are 32 specifications and tests giving quality requirements. In addition to the specifications for soaps, specifications for detergents are given covering the following: borax; soda ash; caustic and modified soda; sodium bicarbonate, metasilicate and sesquisilicate; trisodium phosphate; tetrasodium pyrophosphate (anhydrous). Methods of tests and analytical procedures include: sampling and chemical analysis of soaps and soap products and of soaps containing synthetic and alkaline detergents; chemical analysis of sulfonated and sulfated oils and of industrial metal cleaning compositions; test methods for particle size of soaps and other detergents; and total immersion corrosion test of water-soluble aluminum cleaners. Definitions of terms relating to soaps and other detergents are also included.

Air-test for moisture in cotton. W. Lawrence Ball. *J. Textile Inst. 40,* T759-66 (Nov. 1949).

A method for withdrawing air from a cotton sample and measuring the humidity of the air is described. This test furnishes a rather rapid but relatively inaccurate method (standard deviation 0.25%) for determining moisture content of cotton. According to the author this method is used in emergencies only where the number of samples to be tested is very large.

Artificial daylight in the textile industry. Part II. H. Hewitt. *J. Textile Inst. 40,* P1031-35 (Nov. 1949).

A color matching instrument known as the Siemens color-matching units is described. This instrument not only gives light of good color and satisfactory spectral energy distribution, but also provides a large area of low brightness which is comparable with a window illuminated by daylight. In addition to a description of this unit several requirements for accurate color matching are listed which include: 1) normal color vision in person responsible for matching; 2) a source of light which is reasonably constant in spectral distribution and in intensity; 3) working conditions which favor accurate color vision; and 4) carefully selected surrounding to eliminate "simultaneous contrast".

Artificial daylight—new color matching unit. Part I. W. Harrison. *J. Textile Inst. 40,* P1025-30 (Nov. 1949).

The present paper discusses the characteristics of a proper type of illuminant which can be used to match colors. These characteristics are as follows: 1) the most important requirement is a spectral distribution approximating as closely as possible that of natural daylight on black body radiation at the required color temperature (6500-7000° K); 2) the daylight quality must be maintained throughout its life; 3) the illuminant must be reproducible; 4) a high luminous efficiency is essential; and 5) a large source area is necessary.

Core testing wool. Anon. *Textile Industries 114,* 77-92 (Jan. 1950).

Core testing of wool includes the sampling and testing of raw wool in bales or bags and in an unclean condition for wool content before it is processed in the textile mill. A symposium on core testing is presented and includes the following articles: "Core Testing Revolutionizes Old Concepts of Wool Trading", by Herbert J. Wollner; "Sampling and Testing of Imported Wool", by Louis Tanner & John F. Williams; "Carpet Mill Develops Mechanics of Coring", by Stanley C. Lyons; "Wool Yield Determined by Lab Analysis", by Geo. C. LeCompte; "Commercial Labs Stimulate Core Testing", by R. T. McAndrew; "Core Tests and Sale Contracts", by Alexander Johnston.

Evaluation of wetting agents Leonard Shapiro. *Am. Dyestuff Reptr. 39,* 38-45, 62 (Jan. 23, 1950).

This is an account of investigations made to develop a simple wetting test employing woven tapes and to correlate the results with the standard skein tests (Draves Test). The tape test was found to have the following advantages over the skein

method: 1) greater speed and ease of handling; 2) greater accuracy with a smaller number of duplicate tests and less "freak readings"; 3) less solution is removed by the tape; 4) use of woven material makes interpretation simpler; and 5) wetting and rewetting tests may be run on the same fabric. Experimental methods are described and data are given for results obtained.

Method of analysis for mixtures of nylon and wool. W. O. Perry. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, O. PB 98 808, Oct. 1947. *Bibl. of Technical Reports 12,* 243 (Jan. 16, 1949). 4 p. table. Microfilm $1.25; Photostat $.25.

Experiments were made in an effort to develop a suitable test for determining the per cent wool content of a single yarn which is spun from a mixture of wool fiber and nylon filaments. AAF TSEAAM 5339.

New moisture determination method. Anon. *Silk & Rayon 23,* 950 (July, 1949).

A rapid determination of moisture in cellulose derivatives, carbondisulfide, and other reagents used in the rayon industry is described. The method is dependent on the concentration of water in a liquid which bears a definite relation to the humidity of air with which it is in equilibrum. By measuring the moisture of the air above the liquid its moisture concentration can be determined.

Note on the disintegration of wool in abrasion tests. Herbert F. Schiefer & John F. Krasny. *Textile Research J. 19,* 802-9 (Dec. 1949).

The coating which formed on the abradant when a specimen of wool fabric was abraded caused the rate of abrasion to increase approximately 10 times in 3 successive tests. Electron micrographs of the coating showed that it contained extremely small particles, many of whcih were spherical in shape and about 100 to 200 Å in size. It was concluded that the coating which formed on the abradant consisted of extremely small particles of wool which appear to correspond in shape and size to the elemental structural units (keratin moleclues) proposed in recent concepts of the structure of wool.

Porous plug and fiber diameter measurement. Effect of fiber orientation and use of plugs of randomized fibers. S. L. Anderson & F. L. Warburton. *J. Textile Inst. 40,* T749-58 (Nov. 1949).

The use of plugs of parallel fibers for determination of fiber diameter by an air flow method is discussed. The fiber diameters of a range of wool tops were found from the projector, and shape factor k in the Kozeny equation was determined from air flow results. It was ascertained that the degree of fiber parallelism in tops may be sufficiently variable to make the use of parallel plugs inaccurate in particular cases for determination of diameter. If the diameter is measured by some other method, the air flow results on parallel plugs throw light on the amount of fiber parallelism. In addition, a more accurate method than previously mentioned for determining fiber diameter and a modification of the original equations are discussed.

Proposed international standards for the degree of weighting on silk and for the fastness of dyed silks. F. O. Howitt. *Brit. Rayon & Silk 26,* 68-9 (Nov. 1949).

Tables showing the proposed weighting limits and the minimum values of fastness to light, washing, etc. are given. These were proposed to the International Silk Assn. during May and June of 1949, but were not adopted. The table of weighting limits shows the proposals or recommendations of various organizations as well as the final 1949 proposal.

Tentative textile specifications Nos. 15-17. *J. Textile Inst. 40,* S13-16 (Oct. 1949).

The text of tentative textile specifications are given as follows: No. 15—Determination of the width of woven or knitted fabric; No. 16—Determination of the length of woven or knitted fabric; No. 17—Determination of the weight per unit length and per unit area of woven or knitted fabric.

TEXTILE TESTING. John H. Skinkle. 2nd ed. Brooklyn, N. Y., The Chemical Publishing Co., Inc. 1949. 353 p. Price: $7.75.

. . . The changes which were made in this second edition of the volume consisted mostly in adding new material rather than discarding much, and in bringing up to date many techniques and methods. The section on water resistance has been entirely rewritten in view of the experiences obtained in World War II. The analysis of fiber mixtures in Chapter 14 as well as the microscopical identifications in Chapter 18, has been revised to include the newer commercial fibers. The initial chapter on statistical analysis has been revised to coincide several more uses for statistics, however, one chapter obviously cannot cover

the whole subject, so a compromise has been made which gives the formulae and methods of use empirically and leaves further methods and study to the individual. The volume is divided into 3 parts. There are 19 chapters and an index. Part one deals with physical testing, part 2 covers chemical testing, and part 3 concerns microscopical testing.—*Can. Textile J.*

Ultraviolet light permits quick testing. F. Wood. *Textile World 99,* 142-43, 145, 218, 220, 222, 224 (Nov. 1949).

Ultraviolet light can be used for fiber identification, stain identification, or oil identification. Some mills use ultraviolet light to see if yarn on a cone or beam is mixed and to pick out oil stains that are invisible under ordinary light. The use of the lamps is explained, and tables for the identification of fibers, stains, and oils are given.

TEXTILES AND THE TESTING. Ministry of Supply & Technical Information and Documents Unit of the Board of Trade. London, H. M. Stationery Office, 1949. Price: 6s 5d.

During the war much scientific and technical research was carried out in Government laboratories and research stations and by Universities and firms on behalf of the Government. Most of this work had a direct bearing on the war effort and for obvious reasons could not be publicly disclosed a tthe time . . . [Of the present work] six of its 12 reports are on the testing of fabrics for resistance to tearing, breaking and peeling. The tests described include the measurement of time effects in stressed fabrics, the measurement of tearing energy and of peeling force in plied fabrics, and the determination of stress-strain relations in non-isotropic materials. Two reports each are on the durability of metal-plated fabric, the fireproofing of cotton fabrics, and investigations into the mechanism and prevention of microbiological degradation of cotton fabrics.—*Textile Weekly.*

X-ray microradiography of fibers and fabrics. Chas. H. Lindsley, Earl K. Fischer & Jos. H. Brant. *Textile Research J. 19,* 686-98 (Nov. 1949).

Soft x-rays can be used to form shadowgrams of single textile fibers as well as of yarns and fabrics on fine-grain photographic plates. Single cotton, rayon, wool, and other fibers are clearly resolved by x-radiation generated at 5 kv.; at higher voltages (to 17 kv.), natural fibers give faint shadowgrams. When the fibers are impregnated with 10-20% lead sulfide or other materials, single treated fibers can then be distinguished in masses of untreated fibers. This technique provides a possible means for tracing individual fibers through processing operations.

Instruments and instrumentation G 2

Automatic controls lower costs, raise quality. E. Dalton White. *Textile World 99,* 133, 135, 192, 194 (Dec. 1949).

The Classe Ribbon Works uses automatic controls to keep temperatures individually adjusted to within 2°F for each cylinder of the slasher. Size temperature, size-solution viscosity, and moisture regain of the warp are also closely regulated. In other processes, instruments are used to control temperatures in bleaching and dyeing, boiler room operations, and calendering. All of the above are briefly discussed.

Cloth, etc., inspecting apparatus. R. Leech Ltd. & R. Leech. Brit. P. 588 081. *Textile Mfr. 74,* 97 (Feb. 1948).

Describes magnifying apparatus for use in the inspection of woven fabrics. The apparatus comprises a box having a magnifying lens in the top and an opening in the bottom below the lens, together with wide slots in its walls, and one or more lamps within the casing for illuminating the interior. When the casing is placed over a piece of fabric, the portion of the fabric within the field of the lens can be illuminated by the lamps and the user can insert needles through the slots for counting or other purposes.

Evaluation and development of an abrasion test for rayon fabrics using the Taber Abraser. Margaret O. Harris. *J. Home Economics 41,* 518 (Nov. 1949).

This is an abstract of a doctoral dissertation submitted by the author to The Pennsylvania State College. It describes work done in the development of a reliable and standardized test procedure which could be used for ascertaining the abrasion resistance of rayon fabrics used in an integrated accelerated laboratory textile aging test.

Means for proportioning pull to specimen size. David C. Scott (to Henry L. Scott Co.). USP 2 493 836, Jan. 10, 1950.

This invention provides for an inclined plane type of testing machine, a new form of carriage which is equipped with a plurality of weights which may be readily manually removed that the proper carriage mass may be had. The weight of the carriage which applies tension to the specimen may be adjusted in accordance with the cross-sectional

dimension of the specimen according to a predetermined calculation and thus the record which is mechanically formed in the machine will be comparative for all specimens even though they be of varying cross-sectional dimensions.

Moisture content measurement; instrument to aid control in textiles. J. B. McMillan. *Textile Weekly 44,* 1494, 1496, 1498 (Dec. 2, 1949).

Features of the "Drytester," an instrument for the continuous measurement of moisture in textiles, are described. The "Drytester" can be used to control the speed of drying machines in accordance with its measurements of moisture. In the instrument the electrostatic voltage of the fiber is applied from a pick-up electrode to a vibrating condenser, the electrode being in permanent contact with the whole width of the material as it emerges from the drying unit. This condenser produces a signal which is amplified by electronic means to operate a meter, the needle of which moves across a colored dial.

Moisture determination in textiles by electrical meters: Part III. John C. Whitwell & Richard K. Toner. *Textile Research J. 19,* 755-58 (Nov. 1949).

Describes tests made on a model PD-1C-110 Moisture Register. This meter, designed for wool, gave results with a precision of ± 0.35% moisture, which approaches closely the precision of oven measurement. When used on cotton sliver and acetate staple the results were appreciably less precise. Measurements are sensitive to temperature changes and the presence of impurities.

New methods for holding multi- and single-filament tensile specimens. Richard La Torre & Waller George. *Textile Research J. 19,* 830-32 (Dec. 1949).

Describes a new method of holding yarns for tensile tests which allows for some longitudinal slippage of the fibers over one another in the region where they are fixed to the testing machine, resulting in a reduction in the scatter of individual measurements. For monofilaments the scatter in the breaking strength is of the order of ± 2% of the mean strength for small (10 to 20 individual) test lots.

Roving levelness testing. "Lanarius". *Can. Textile J. 66,* 54 (Dec. 9, 1949).

Describes the WIRA sliver and roving levelness tester which works on the principle that the height of the compressed sliver in a suitably selected groove bears a high correlation to the weight per

unit lengt at that particular point. The grooves vary in size to handle the finest roving, weighing 2 drams per 40 yds., to heavy slubbing weighing up to 600 drams for the same length. The instrument has been re-designed for commercial use and can be used for testing cotton slivers.

Selection of a temperature-measuring system for textile mills. C. W. Bowden, Jr. *Textile Research J. 19,* 826-29 (Dec. 1949).

Pressure-type thermometers and electrical systems are the 2 most widely used means of measuring temperature. The former is operated by the expansion of a fluid as it is heated which motivates a pressure-sensitive hollow metal spiral similar to that used in a pressure gage. The latter consist of resistance circuits in which the change in resistance of a metallic conductor with temperature is measured and also of the thermocouple circuits in which a potential difference is generated at the free ends of a bimetallic thermocouple.

Textile instruments XIII. Moisture control. R. W. Moncrieff. *Fibres 10,* 436-39 (Dec. 1949).

In this article are discussed several types of moisture meters not previously described in this series. One which is of special interest uses calcium carbide. A known weight of substance whose moisture content is required is introduced into a vessel containing calcium carbide. After sealing, the substance and calcium carbide are thoroughly mixed and the pressure created by the formation of acetylene is measured by a gage which is calibrated to read per cent moisture. Also described are several continuous process moisture testers used for determining moisture content of fabrics, and slashed warps. (See also TTD: *6,* 971.)

Viscometer. Welker G. Bechtel & Carl C. Kesler (to Corn Industries Research Foundation). USP 2 491 639, Dec. 20, 1949.

This invention provides a unit for use in viscosity measuring apparatus which unit comprises, in combination, a rotatable scraper adapted to scrape the interior surface of a container holding the material for measurement of its viscosity. The unit insures that a sample of fluid, the viscosity of which is being determined, will be uniformly agitated so that substantially uniform temperature will be maintained throughout the sample and the consistency of the sample throughout all portions will be substantially uniform. The viscosity of a fluid sample may be continuously determined over a relatively long period of time, during which a constant rate of shear is maintained.

Wool coring device. Geo. C. LeCompte & Wm.

Salkind. USP 2 492 158, Dec. 27, 1949.

The device is intended to core both loosely packed and well packed bags of grease wool, obtaining complete cores easily and quickly, the cores being in an open, untwisted condition. The device consists of 2 tubes, an outer revolving or oscillating tube and an inner stationary tube. The outer tube may have an internal spiral ridge in the throat. The wool is cut in a number of ways. In one, a tubular sharp cutting edge, which may be notched or toothed, is attached to the outer tube by means of a removable metal throat which extends within the inner tube. In another, toothed cutting or severing means is attached to both the outer revolving or oscillating tube and the inner stationary tube, the wool being caught between the teeth as the outer tube revolves or oscillates.

Yarn inspecting device. Edw. O. Jennings. USP 2 490 134, Dec. 6, 1949.

The method of inspecting yarn which includes winding the yarn about a drum, spacing a portion of each convolution of yarn from a corresponding drum portion, and when the yarn is defective, inserting a board between the convolutions and the drum portion, securing the convolutions to the board without disturbing their appearance or position, severing the portions secured to the board from the convolutions, and removing the board.

TEXTILE MILLS H

Accelerated waste treatment methods. E. G. Kominek. *Chem. Eng. Progress 45*, 417-20 (July 1949).

Accelerated treatment of wastes are important where it is necessary to confine the treatment plant into the minimum area. Several accelerated methods of waste treatment are described and diagram of the equipment used are shown.

Alphabetical list of new products developed since November 1948. Anon. *Am. Dyestuff Reptr. 38*, 877-908 (Dec. 12, 1949).

New products which have been placed on the market or further developed since November 1948 are listed alphabetically under the heading of Dyestuffs and Pigments, Textile Chemicals, and Equipment. Manufacturer's names are given for each product listed.

Annunciator system saves time. Anon. *Textile Industries 113*, 94 (Dec. 1949).

Greater plant efficiency is attributed to indicator lights which have been installed on machines at

Textron's Willimantic tricot plant. The system is reported to save valuable time for machine tenders, knitter mechanics, and foremen.

Automatic doffer and winder feed hits of Manchester show. Jos. S. Barke. *Textile World 99*, 101-05, 232, 234, 236 (Dec. 1949).

Brief descriptions are given of textile machinery shown at the recent International Textile Machinery Exhibition in Manchester, England. Other machines attracting interest were MS2 slubber flyer, Nastrofil spinner, Hegemax device, 13 automatic winders, high-draft systems, and Autojig controls.

Basic mill modernization. Anon. *Am. Wool Cotton Reptr. 64*, 22, 51 (Jan. 12, 1950).

A program of comprehensive mill conditioning is discussed with the application of electrical power stressed for efficient production.

Ceiling cleaners cut maintenance. Anon. *Am. Wool Cotton Reptr. 64*, 35 (Jan. 12, 1950).

Ceiling cleaners for carding, roving, spinning, etc. rooms consist of a high velocity fan mounted on trolleys for travel on monorail track. The fan can direct a column of air in varying degrees from its vertical axis. Advantages reported include elimination of hand cleaning, reduced fire hazard, and increased efficiency.

Characteristics and treatment of wool dyeing wastes. Josephy A. McCarthy. *Sewage & Ind. Wastes 22*, 77-86 (Jan. 1950).

Wool dyeing wastes are stronger than domestic sewage, but weaker than wool scouring wastes. The volume produced per pound of wool is greater than that produced by scouring. Sedimentation and coagulation do not offer effective methods for treatment. The waste may be treated satisfactorily on trickling filters, preferably after equalization, with loadings at least as great as those employed with domestic sewage. Recirculation makes heavier loading possible. High or low pH markedly reduces filter loading and filter efficiency. Sludge volume is low and is readily disposable. Dye wastes introduced into domestic sewage should not present insoluble problems outside, of course, of the added loading.

Chemical waste disposal at a textile plant. Anon. *Chem. Industries 65*, 210 (Aug. 1949).

See "Utilizing municipal facilities for waste disposal", TTD: *6*, 887.

Corrosion of stainless steel equipment. Anon. *Can. Textile J. 66*, 53-4 (Dec. 23, 1949).

Results of a survey by the A.A.T.C.C. of corrosion of stainless steel equipment in textile mills reveal that this problem is not as serious or as widespread as was originally anticipated. Molybdenum-containing steels were found to have better resistance to deterioration than the regular stainless steel alloys. Alloys with at least 28% combined nickel and chromium, not more than 0.12% C, and finished with a No. 4 polish were found to be satisfactory for most uses.

Cost accountancy with special reference to textiles. F. Leadbetter. *J. Textile Inst. (Proc.) 40,* P985-91 (Oct. 1949).

The purpose of industrial accountancy, which is to assist in the search by enlightened industrial leadership for the most efficient methods of production and selling by providing costs, statistics, accounts and forecasts calculated to reflect variations in efficiency and to guide management in the formation and carrying out of policy, is discussed. As the result of a rather comprehensive study the conclusion is reached that there is a necessity for achieving the greatest measure of efficiency in the textile trade in order to insure its survival as a major industry.

Effective instrument maintenance. Parts II-III. E. A. Murphy. *Textile Industries 113,* 101-6 (Dec. 1949); *114,* 93-5 (Jan. 1950).

Part II—Flow meters are discussed with details given on connecting piping, calibration, maintenance, operating errors, and suggestions for trouble shooting. Part III—The function and maintenance of the thermocouple-actuated potentiometer pyrometers are discussed, and instrument lubrication is reviewed. (For Part I see TTD: *6,* 973.)

Electricity in the cotton industry. F. W. Cox & W. E. Swale. *The Engineer (London) 188,* 685-7 (Dec. 9); 717-9 (Dec. 16, 1949).

Starting with a historical review of Britain's cotton industry and an outline of the goals of its modernization program, this paper describes the growing acceptance of electrical drives for textile machinery. In 1945, electrical motors supplied 37% of the horsepower in spinning mills, 29% in weaving sheds, and 63% in dyeing and finishing works. Mills converted to electrical drive usually retain 10-20% of their steam capacity for heating and process uses. Power requirements vary with equipment type and with material being processed, and data are given for spinning, doubling, and dyeing and finishing. Roller and ball bearings are coming into use; the improved

starting power demand is illustrated with curves for ring-spinning frames. In British textile mills, both group and individual electrical drives are employed, the trend being toward the latter because of their flexibility. Squirrel-cage induction motors are common for individual drives. Spinning mills use them in sizes from 1 or 2 to 15 horsepower, normally of totally-enclosed or totally-enclosed fan-cooled types. These easily deliver the required starting torque, except on carding machines, where belt drive is used with tension adjusted to permit slipping and gradual acceleration of the cylinder. Doubling mills employ motors up to 25 h. p. Weaving sheds use ½ to 3 h. p. motors, on which mechanical speed control is common. Finishing factories are more fully converted to individual electrical drive than other operations because of their scattered machinery and frequent need of speed control. Motors up to 80 h. p. are employed, with drip-proof enclosures and incorporating widely varied methods of speed control. Continuous processing is rare. Power factor correction is accomplished with static capacitors, either at the motor or located at distribution points and switched by relays.

Electronic controls improve cloth quality and cut costs. Geo. Ladd. *Textile Age 13,* 110-12 (Dec. 1949).

Successful applications of electronic controls on spoolers and winders, warpers, looms, and knitting machines are described.

Fluorescent lighting in nylon hosiery factory. F. A. Westbrook. *Textile Mfr. 76,* 28-9 (Jan. 1950).

Describes experiments carried out to determine the best arrangement for maximum illumination in a hosiery factory. By use of 2 rows of 2-light 40-watt porcelain reflector fixtures, with one row over the bed of each machine an even distribution of light at the needle point was obtained with an intensity of 70 ft. candles. Daylight lamps were selected by the operators as being preferable. A light intensity of 85 ft. candles was obtained at machine operation level in the seaming and looping room and 90 ft. candles on the tables in the inspection room.

Gas for textile processing. Arthur Q. Smith. *Am. Wool Cotton Reptr. 64,* 25, 53-4 (Jan. 12, 1950).

The use of small economical gas units on textile machines to replace cumbersome steam machines is suggested for speeding up processing. Convec-

tion heating is recommended because of its wide application and because temperature, velocity, and humidity of the air in drying can be accurately controlled. The application of gas burners in slasher and nylon setting machines is described.

Hydraulic jack simplifies beam handling. Anon. *Textile Industries 113*, 100 (Dec. 1949).

A small mobile hydraulic jack, used to carry beams from the drawing-in room to the looms, can raise a beam approximately 4 feet above floor level and has a tray to support the beam which can be rotated to any desired position.

Improved textile machinery for efficient mill operation. A. D. Asbury. *Cotton Trade J.* (International Ed., 1949-1950), 164-65, 175.

This is a review of recent improvements in textile machinery which have increased efficiency and improved quality. The emphasis has been on improved, high speed, more automatic machines to increase the output of the workers with less actual manual labor.

Impurities in process water. A Technical Correspondent. *Textile Weekly 44*, 758, 760, 762, 764 (Sept. 23, 1949).

The difficulties arising from impurities in process water are discussed and illustrated by reference to actual cases that have been reported in the technical literature.

Increased illumination. Anon. *Am. Wool Cotton Reptr. 64*, 16-18 (Jan. 12, 1950).

New lighting installations at Bachmann-Uxbridge Worsted Corp. Mills are described, and the benefits derived from the increased illumination are discussed.

International Textile Machinery and Accsesories Exhibition. Anon. *Textile Recorder 68*, (Nov. 1949).

The entire November issue of the *Textile Recorder* is devoted to a description of the equipment that was on display at the Textile Machinery Exhibition held at Bellvue, Manchester, England, between October 12-22, 1949.

Knitting-plant modernization reduces maintenance. F. Elwood Struve. *Textile World 99*, 135, 202, 204, 206 (Nov. 1949).

Apex Hosiery's modernization program included new machinery, expansion of air conditioning, and the use of glass block in all window openings. Many advantages resulted from the use of glass block in window openings; maintenance was reduced, control of air conditioning improved, and

dirt was excluded from the plant and the hosiery.

Made-to-order mill weather. P. L. Davidson & John deB. Sheppard. *Am. Wool Cotton Reptr. 64*, 23, 53 (Jan. 12, 1950).

Air conditioning in textile mills is reviewed with discussion presented on unit and central station type systems, electrostatic filters, windowless mills, and refrigeration in mills.

Magnesium in the textile industry. Howard H. Nuernberger. *Rayon & Syn. Tex. 31*, 41-3 (Jan. 1950).

The physical characteristics of magnesium, its maintenance cost and fabricating qualities are noted. The use of magnesium in spinning, twisting, and winding machines, tricot knitting machines, warp preparation equipment, looms and weaving equipment, hosiery machines, and finishing equipment is briefly noted.

Materials handling need individual engineering. S. R. Brookshire. *Textile World 99*, 151, 153 214, 216 (Nov. 1949).

Many different types of equipment can be used for materials handling. Handling costs represent 40% of the manufacturing costs, and add nothing to the value of the product. Raw material handling, yarn handling, and cloth handling all present possibilities for handling improvements.

Mill floor cleaning. Anon. *Am. Wool Cotton Reptr. 64*, 14-15, 33 (Jan. 12, 1950).

New dry-cleaning methods for floors and their advantages at Lebanon Woolen Mills are described.

Mill's use of water power. Anon. *Am. Wool Cotton Reptr. 64*, 27, 29 (Jan. 12, 1950).

Features of the hydraulic turbine for supplying more water power are discussed, and a diagram of the hydraulic turbine assembly is presented.

Modern textile plant design. John A. McPherson. *Am. Wool Cotton Reptr. 63*, 35, 61-2 (Dec. 15, 1949).

The evolution and growth of the textile industry in the South are traced. The development of electrical power, individual machine drives, and high intensity fluorescent illumination has made possible the one floor operation of textile mills. A diagrammatic sketch of a square one-story layout for a Southern textile mill is given, and advantages for this types of construction are listed.

Outdoor steam main replaces 2 boiler plants. John

Murphy. *Textile World 99*, 145, 206, 208 (Dec. 1949).

Three devisions of the Bates Mfg. Co. have been connected by outdoor mains so that all steam can be furnished from a central boiler room. All pipes, joints and valves are insulated. A table gives the type and thickness of insulation used at all points. The total length of the steam main is about 3,300 ft. The boiler units are designed to deliver steam at 200 psi and 388°F.

Radioactive element 84 neutralizes static charges. Paul M. Platzman. *Textile Industries 113*, 90-3 (Dec. 1949).

The Alphatron static eliminator is, essentially, a polished brass or nickel supporting member in almost any shape on which the radioactive element polonium is plated by means of an electrochemical process. The active polonium surface is gold plated to facilitate dust removal and to protect against oxidation. Polonium emits alpha particle which ionize the gas molecules of the air, and the air loses its insulating properties and becomes conductive, thus dissipating the accumulation of static electricity in nearby objects.

Selvedge marking machine outmodes present methods. Anon. *Am. Wool Cotton Reptr. 63*, 71-2, 93 (Dec. 15, 1949).

The Milford-Astor machine, a new British machine, applies continuous and rapid selvedge marking on all kinds of fabrics with dry plastic pigments. Features of the machine are discussed.

Silicones in the textile industry. F. L. Dennett. *Am. Dyestuff Reptr. 39*, 63-4 (Jan. 23, 1950).

Silicones have been compounded to give high temperature greases, oils, anti-foaming agents and electrical insulating materials which are of value to the textile industry. They have also been made into durable water repellent finishes for acetate rayon and nylon.

Solvent for rayon wastes. Chas. L. Mantell (to United Merchants & Mfrs., Inc.). Can. P. 449 555, June 29, 1948.

Method of removing rayon from textile material which comprises treating such material with an aqueous solution made from about 7 to about 15% by weight of alkali metal hydroxide, about 4 to about 10% by weight of urea, and about 2% to the saturation percentage by weight of zinc oxide, the saturation percentage of zinc oxide being that amount above which zinc oxide will precipitate from the aqueous solution containing the

alkali metal hydroxide, urea and zinc oxide in the said amounts.

Solvent for rayon wastes. Chas. L. Mantell (to United Merchants & Mfrs., Inc.). Can. P. 449 556, June 29, 1948.

Method of removing regenerated cellulose from textile material which comprises treating such material with an aqueous solution made from about 10% by weight of sodium hydroxide, about 10% by weight of urea, and about 1.3% by weight of stannic oxide.

Stainless steel the answer to many corrosion problems. Anon. *Textile World 99*, 124-25 (Dec. 1949).

Stainless steel is being used increasingly by textile plants for such things as bobbin heads, rods, separators, and spindles in spinning; drop wires, heddles, and reeds in weaving; drums, hoods, and rollers in slashing; and many uses in knitting, dyeing, and finishing. Most of the steel used has 18% chromium, 8% nickel and is of low carbon content.

Tailoring humidification or air conditioning to an existing textile mill. Hugh P. Williams. *Can. Textile J. 66*, 48-50 (Nov. 11, 1949).

Controlled humidity in a textile mill results in less breakages of fiber and yarn, more compact drafting and spinning and reduction in static electricity. All of these factors permit higher speeds of operation and result in a much better product.

Variable speed transmission for textile drives. Anon. *Silk & Rayon 23*, 952, 954 (July, 1949).

A discussion is given on variable speed transmissions for textile drives with details of securing the most effective balance between torque and speed, fiixing the speed, and chain contact.

Vibration control increases textile machine efficiency. Anon. *Am. Wool Cotton Reptr. 63*, 20-1 (Jan. 12, 1950).

Pads of a wool mixture, known as Unisorb, are being used to anchor textile machines to the floor. A synthetic cement secures the pads to the metal feet of the machine. Machine vibration and noise are reduced; production is increased; equipment may be easily moved; wear or machine parts and buildings is reduced; and actual cost per unit is very low.

Warehouse storage methods. Anon. *Am. Wool Cotton Reptr. 64*, 19, 34 (Jan. 12, 1950).

The use of battery-powered fork trucks in a number of textile mills is reported to increase effi-

ciency, speed materials handling, increase warehouse capacity, reduce man-power, and cut time element.

What's wrong with textile mill air conditioning. Dan McConnell. *Textile Industries 113,* 95-6, 106 (Dec. 1949).

A discussion is presented on the problems of circulating systems, air distribution, temperature, and controls of air conditioning and suggested ways in which they might be improved.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Battle of fibers. Peter Webb. *Can. Textile J. 66,* 46, 48, 50, 51 (Dec. 9, 1949).

Refers to the work of Rees, Cassie and Harris as a basis for explaining the phenomena of warmth and handle in textile materials. An attempt is made to show the interelationship of the 2 phenomena and characterize them on the basis of the physical properties of the fibers and the fibrous masses.

Cellulose studies XII: Degree of polymolecularity of acid-modified celluloses. P. C. Mehta & Eugene Pacsu. *Textile Research J. 19,* 699-703 (Nov. 1949).

For the determination of the degree of polymolecularity in acid-modified celluloses the nitrates of hydrocelluloses from native cotton, surgical cotton, and viscose rayon were fractionated from dilute acetone solutions. The results indicate that a large proportion of the hydrocelluloses are uniform in that almost 33% of the methanolyzed native cotton consists of molecules with D. P. 252, about 70% of the hydrocellulose from surgical cotton has D. P. 260, and some 36% of the material from viscose rayon possesses D. P. 62. Moreover, the most important fractions were found to be integral multiples of the assumed "limit hydrocellulose" with D. P. 64, confirming the new concept of cellulose structure which postulates that there are chains of 64 glucose-anhydride units connected by weak, acid-sensitive acetal bonds in the cellulose molecule.

Cellulose studies XIII. Heterogeneous hydrolysis of trimethyl cellulose. Richard Steele & Eugene Pacsu. *Textile Research J. 19,* 771-83 (Dec. 1949).

The course of the hydrolysis of trimethyl cellulose with 1*N* HCl at 60° and 80°C and with 0.05*N* HCl at 60° yields a limiting D. P. of 60, confirming the fact that there are 60 glucose residues between acetal linkages. The order of magnitude of the limiting D. P. value, which was determined viscosimetrically, was confirmed by hypoiodite titration.

Cellulose studies XIV. Fractionation and solubility of trimethyl cellulose. Richard Steele & Eugene Pacsu. *Textile Research J. 19,* 784-90 (Dec. 1949).

Chloroform-hexane and pyridine-water are unsuitable systems for the fractionation of methyl cellulose. The former tends to precipitate a large part of the solute at once, even when the amount of non-solvent added is small. In pyridine-water, serious degradation occurs, and the separation is caused not only by D. P. differences but also by differences in methoxyl content.

Cellulose studies XV. Infrared spectra of trimethyl cellulose, cellulose, and starch. Richard Steele & Eugene Pacsu. *Textile Research J. 19,* 790-93 (Dec. 1949).

A techniques for mounting films and obtaining their infrared spectra in a dry state is described, and the spectra of trimethyl cellulose, cellulose, and starch are presented and discussed.

Changes in solubilizing power with concentration for various detergents. J. W. McBain & Harriette M. Huff. *J. Colloid Sci. 4,* 383-94 (Aug. 1949).

The solubilization of dyes by a series of very different detergents was studied over a range of concentration for each detergent. Change in solubilizing power with change in concentration was very different for different detergents. It follows, in agreement with other evidence, that the micelles or colloid particles in any one concentration of a detergent differ from those in other concentrations of the same detergent. There must be an equilibrium between different kinds of micelles present in the same solution, changing with concentration and other factors.

Chemical technology of wool—X. Measurement of damage. J. L. Stoves. *Fibres 10,* 440-43 (Dec. 1949).

Physical and chemical methods of measuring damage to fibers are discussed. Under physical methods the use of microscopic techniques are mentioned as are the advantages of tensile strength measurements of individual fibers. Under chemical methods, staining tests using Indigo Carmine, Kiton Red G, Methylene Blue, lead acetate and the Pauly Test are discussed. Also, under chemical tests such as alkali solubility,

swelling characteristics in acid or alkali are mentioned.

Flow properties of fibers. Stephen A. Rossmassler & Henry Eyring. *Textile Research J. 19,* 810-15 (Dec. 1949).

One of the less common ways of testing fibers is to subject them to a sinusoidal rate of loading. In the present paper a mathematical treatment is developed for the behavior of visco-elastic materials under such conditions, and the theory applied to data obtained using nylon 66 monofils. Results indicated that significant values for the flow process are dependent on the frequency of vibration. The experimental method used is described.

Helical fibrillar arrangements in jute. M. K. Sen & R. N. De. *Nature 164,* 670 (Oct. 15, 1949).

The results of Chakrabarti and Nodder, reported in "Some effects of the helical fibrillar structure of vegetable fibers", appear to be based on incorrect fibrillar arrangements according to the present authors. The work of Chakrabarti and Nodder is discussed and reasons are given for questioning its validity.

Mechanism of felting. Anon. *Wool Science Rev.* No. 3, 3-9 (July 1949).

Differential frictional effect, fiber travel and elasticity, and formation of entanglements with respect to felting are discussed.

Pore-size distribution in textiles—a study of windproof and water-resistant cotton fabrics. Helmut Wakeham & Nancy Spicer. *Textile Research J. 19,* 703-09 (Nov. 1949).

Describes an improved method for studying the nature of interyarn pore spaces in textile fabrics by means of a mercury pressure porosimeter. A series of measurements reported on 14 fabrics suggests that definite relationships exist between pore size and volume on the one hand and air and water permeability on the other.

Some effects of helical fibrillar structure of vegetable fibers. B. K. Chakrabarti & C. R. Nodder. *Nature 163,* 19-20 (Jan. 1, 1949).

The breaking-twist, bundle diameter, breaking load and torsional rigidity of bundles of jute fibers were measured to determine the effects of the insertion of Z and S twists.

Change of Title

The title of *Sewage Works Journal* changed to *Sewage and Industrial Wastes* with the January 1950 issue (Vol. 22, No. 1).

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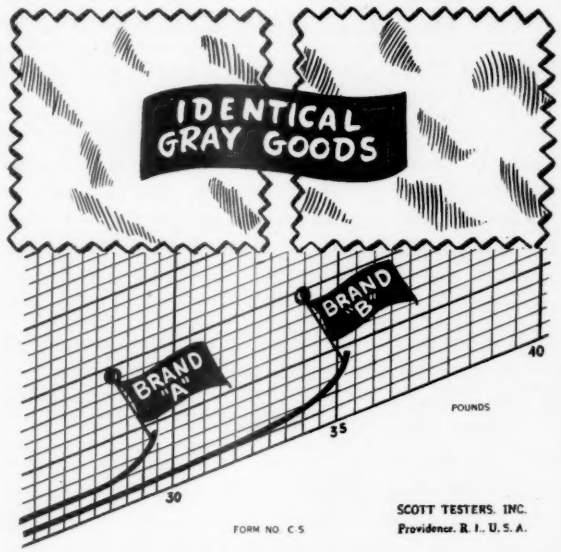

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